Understanding the Early Years

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Early Childhood Development in Prince Edward Island

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Executive Summary

Understanding the Early Years (UEY) is a national research initiative. It provides communities with information to enable them to make informed decisions about the best policies and most appropriate programs for families with young children. It seeks to provide information about the influence of community factors on children's early development and to improve the community's capacity to use these data in monitoring child development and creating effective community-based responses.

This report is one of five community reports describing children's outcomes and explaining them in terms of three factors: family background, family processes, and community factors. Children's outcomes were assessed in three major categories: physical health and well-being, cognitive skills, and behavioural measures.

Each evaluation comprised several measures.

- *Family background* includes information on the parents' income, level of education, and occupational status.
- *Family processes* include positive parenting practices, engagement in learning activities, family functioning, and maternal mental health.
- *Community factors* include social support and social capital, neighbourhood quality and safety, use of recreational, cultural, and educational resources, and residential stability.

The children of Prince Edward Island are fortunate, because a base of family and community support for the early years has already been established. There is, however, room for improvement. With decisions based on research evidence, effective practices can be developed and Prince Edward Island can continue to work toward achieving the goal of ensuring that every child enters school with the best possible chances of success.

Data for these reports were derived from several sources.

- The *National Longitudinal Study of Children and Youth* (NLSCY) *Community Study* is a national instrument used to gather data directly from parents and children concerning the health and well-being of children 5-6 years of age.
- The *Early Development Instrument* (EDI) is based on a teachers' checklist of their kindergarten students' readiness to learn.
- The NLSCY and EDI data collected from the UEY sites allows comparison across the five UEY communities. Where possible, the outcomes of the children in this community were compared with averages for their province and for Canada as a whole. If data was not available at those levels, the outcomes of the children are compared across the five UEY communities of Southwest Newfoundland; Prince Edward Island; Winnipeg (School Division No. 1), Manitoba; Prince Albert, Saskatchewan; and Fraser North, British Columbia.

Prince Edward Island is one of the first five sites for the UEY initiative. Valuable lessons will be learned about the needs and strengths of communities with different economic, social, and physical characteristics, and about how they are each working to improve their young children's outcomes. This community-based research is important because it allows a community to understand how well its youngest citizens are developing and lends insight into which factors contribute to success and which warrant further consideration.

Study Highlights

In Prince Edward Island, approximately 20% of families were low income and almost 21% of families were single parent families. Yet, one of the study's surprises is that the spatial distribution of children's outcomes does not match socio-economic status patterns. Many children in low-income areas are faring quite well.

Using three tests, the NLSCY found that children in Prince Edward Island scored above the national averages on direct assessments of their vocabulary and cognitive development. The EDI found that the results for the children of PEI on each of the five domains of school readiness exceed the average of all children evaluated using the EDI in 1999-2000.

This community can take pride in the success of its youngest children. However, there is room for improvement. More than 11% of its children had low scores on the *Who Am I?* test, 9.5% scored poorly for aggression/conduct disorder and 9.4% had low scores for positive behaviour.

Despite relatively low levels of socioeconomic status, Prince Edward Island had high scores on community indicators describing its levels of social support, social capital, and the quality and safety of its neighbourhoods.

Few residents move within or out of the province, which can help its citizens take advantage of strong community and social resources that can engage parents and other caregivers in children's learning activities. These factors undoubtedly contribute to PEI's success in achieving high levels of children's outcomes.

In PEI, parents had relatively strong parenting skills, and were members of safe, high quality neighbourhoods. The role of positive parenting is particularly important to children's outcomes. It explained 37% of the differences in physical health and well-being scores, and 131% of the differences in behaviour scores. This latter number was by far the highest in the study.

Based on NLSCY data, use of resources is low, 3.4 on a 10.0 point scale, for Prince Edward Island, and 3.2 based on the combined NLSCY data of the five pilot UEY communities.

The family and community indicator scores for Prince Edward Island were higher than the average for the five UEY communities on 7 of the 10 measures used. The total score out of 100 for family and community indicators for Prince Edward Island is 69.7, which is 2.8 points above the average for the five UEY communities, which is 66.9.

Despite good overall development, children in Prince Edward Island would benefit from efforts to improve family functioning and parental engagement. Cognitive development and positive behavior could be improved by greater parental engagement in children's learning activities, which was the province's weakest area on the ten indicators. The community could also strive to improve children's access to educational and cultural resources.

Acknowledgements

This report was prepared by J. Douglas Willms, with the help of Rick Audas, Shawn Dalton, and George Frempong. The author is grateful to the staff of the Applied Research Branch for comments on drafts of this report; and to Sarah Connor, whose report on the UEY project in North York (the prototype community) provided a useful starting point. The author is pleased to acknowledge Sarah Henry Gallant, the community research co-ordinator for Prince Edward Island, who provided demographic highlights, maps of Prince Edward Island, and information on local services and resources. Without Ms. Gallant's assistance, the study would not have been possible.

The author would also like to thank Magdalena Janus for her feedback on the EDI analysis. Magdalena Janus, along with Dan Offord and the Canadian Centre for Studies of Children at Risk, developed the EDI described in the first chapter of this report.

1. Introduction

A. What This Study Is About

Understanding the Early Years (UEY) is an initiative that provides information to help strengthen the research capacity of communities to make informed decisions about the best policies and most appropriate programs to serve families with young children. It seeks to provide information about the influence of community factors on young children's development, and to enhance community capacity to use these data to monitor early childhood development, and to create effective community-based supports. Data describing the outcomes of children ages 5 and 6, as well as the family and community environments in which they live, were collected from three sources: their parents, their teachers and from the children themselves.

This research report is one of five community research reports describing children's outcomes and explaining them in terms of three factors: family background, family processes, and community factors. Children's outcomes were assessed in three major categories: physical health and well-being, cognitive skills, and behavioural measures.

The data for all five community research reports were based on the Early Development Instrument (EDI) and the National Longitudinal Survey of Children and Youth (NLSCY) assessments. This means that the samples drawn in each of the first five communities were based on families with children ages 5 and 6 who were given both of the EDI and NLSCY assessments.

In order to understand the performance of the children in this community based on the EDI, the results are compared to a larger EDI sample of about 28,250 children, drawn from selected communities. Although this sample – referred to as EDI-16, is not truly national or representative, it provides a means of comparing children in this community with other 5-6 year old children. The numbers of EDI-16, are different from those used in the EDI monitoring report.[1]

The results from the NLSCY assessments taken by the community children are compared with the national means, developed from the national survey, which has a nationally representative sample. There is increasing evidence to support the importance of investing in the early years of children's development. New research shows that these formative years are critical, and that the kind of nurturing and stimulation that children receive in their early years can have a major impact on the rest of their lives.

Evidence also suggests that neighbourhoods and communities where children grow and learn directly influence their development. They affect parents' ability to provide the best possible family environment, and the ability of schools to offer the best possible education.

Neighbourhoods, communities, provinces, and regions across Canada differ in important ways. Therefore, gathering community-specific information about children and the places where they are raised can help the policy sector[2] deliver programs that are sensitive and responsive to local conditions. *Understanding the Early Years* can contribute to this process.

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[1] The EDI community monitoring report uses only EDI data. The NLSCY data is from a sample of all of the children who completed the EDI. So the numbers in the EDI report and the research report will not be the same.

[2] "Policy sector" is broadly conceived to include families, the private and voluntary sectors, and governments at local, provincial and federal levels.

This research report provides baseline information about kindergarten children in Prince Edward Island (PEI). Figure 1.1 shows the geographic area where children 0-6 live in PEI. It is important to note that the UEY community comprises the entire province of PEI. This is in contrast to all of the other UEY communities, which are drawn from specific school division boundaries. As Figure 1-1 shows, there are children living from tip to tip on Prince Edward Island.

The first aim of this report is to assess how children fare in learning and behavioural outcomes and in physical health and well-being. It considers children's developmental outcomes shortly after they begin kindergarten. Where possible, the report provides national-level information with which local conditions can be compared.

The report's second aim is to discern how important certain family and community factors are in affecting children's development, as well as to provide some indication of what actions might further improve children's outcomes in this community.

The report sets out ten indicators upon which this community can act over the next few years. If the policy sector can devise means to improve the processes associated with these indicators, it is likely that children's outcomes during the formative years will improve, as will their chances of leading healthy and fulfilling lives.

B. How The Study Was Conducted

The information contained in this document was collected and analyzed using a variety of methods.

Two major types of information about the children were collected. The first considers their "readiness to learn", which comprises five major domains:

- Physical health and Well-being
- Social Competence
- Emotional Maturity
- Language and Cognitive Development
- Communication Skills and General Knowledge.

Information for this set of domains was collected by teachers, using a checklist called the Early Development Instrument (EDI), developed by Dr. Dan Offord and Dr. Magdalena Janus at the Canadian Centre for Studies of Children at Risk, McMaster University. Early childhood educators of all children attending kindergarten in Prince Edward Island were asked to complete the checklist about the behaviours and development of each child in their class. This information was used to determine how ready the community's children, as a whole, were for school.

The second type of developmental information was collected through a survey of parents, guardians, and the children themselves. The instruments used in the National Longitudinal Survey of Children and Youth Community Study were administered to children and their parents. This was done to acquire more detailed information about the experiences of children and families in PEI, as well as, measures of children's outcomes regarding their cognitive skills, pro-social behaviour and behaviour outcomes. In addition, information regarding childcare arrangements (e.g., whether children were cared for by parents, relatives, or non-relatives, either at home or outside the home) was collected.

A random sample of 508 children from Prince Edward Island was selected to participate in this survey. Statistics Canada interviewers

Figure 1.1

Where did the children live on PEI?

collected detailed information from and about these children using instruments from the NLSCY Community Study. The major instruments measuring children's outcomes include:

- Vocabulary Skills (Peabody Picture Vocabulary Test, Revised)
- Developmental Level (Who Am I?)
- Number Knowledge (Number Knowledge Assessment)
- Behaviour Outcomes.

The interviewers also collected information about several family and community factors that can help explain the patterns of child development in the community.

Children completed assessments that asked them to draw, print symbols (e.g., letters and words), show their understanding of quantity and number sequence, and match pictures to words that they heard. Their families provided information about their social and economic backgrounds; their children's activities and involvement in the community; their health; and their social, emotional, and behavioural development.

Because the NLSCY questionnaire is also used across the country as a national survey, the outcomes for children in this community can be compared with national data.

C. Why The Study Is Of Interest

Understanding the Early Years combines information about children with information about their families and the communities in which they live. This in turn, provides an understanding of the relationship between children's outcomes and the environments in which they are raised. This is important for Canada's parents and communities who want to help their children develop well. Second, it helps the individuals, institutions, and communities who work with children to understand these processes at the levels where action is often most effective, the neighbourhood and community.

This report highlights some of the key findings from the information that was collected from early child educators, parents, and their children. It examines the overall development of children in kindergarten (through the Early Development Instrument) and provides a more detailed look at the outcomes of these children (through the NLSCY Community Study). It suggests some of the unique strengths from which Prince Edward Island can work, and some challenges to overcome in continuing to build a collective commitment to ensure the health, well-being, and positive development of its young children.

D. A Profile of Prince Edward Island

Prince Edward Island is the smallest of Canada's provinces, both in size and population.

The island is just 224 km long and from 6-64 km wide, covering 5,660 km. No place in the province is more than 16 km from the sea.

According to Statistics Canada, the population of PEI in 2000 was 138,900. This means that while it is densely populated, it is not overcrowded. There were approximately 11,080 children age 0–6 in PEI in 2000, comprising about 8% of the population.

Approximately 56% of the population, or 75, 095 people, live in rural areas, with farm area covering 46.8% of the total land area. The majority of the population is of British ancestry, and approximately 11% of the population speaks French. The major industries on PEI

are agriculture, tourism, and fishing, which are all seasonal industries that are dependent on the land and the weather.

The province is divided into three counties: Prince, Queens, and Kings. In 2000, 19, 950 people lived in King's County, 73, 716 in Queen's County and 45, 258 in Prince County. The capital city, Charlottetown, is located in the central region of the island, in Queens County, and has a population of 32,500. The second largest city, Summerside, is located in the western region of PEI, in Prince County, and has a population of 14,500.

Here are some additional demographic highlights (Source: Statistics Canada, 1996 Census):

Education

- In Prince Edward Island, approximately 43% of the population 15 years of age and older had not yet obtained a high school diploma. This is higher than the national average of 38%.
- 59% of the enumeration areas (EAs) are neighbourhoods where the number of individuals without a high school diploma is higher than the national average. Approximately 60% of all children in Prince Edward Island between the ages of 0 and 6 live in these neighbourhoods.

Employment

- The average unemployment rate in Prince Edward Island is 14%. This is above the national average of 10.0%.
- Approximately 53% of children age 0 to 6 live in EAs with an unemployment rate higher than the national average. These areas are more prevalent in the western and eastern ends of the island, with lower unemployment rates in the central area of the province.
- Women in PEI have one of the highest rates of labour force participation in Canada, with 62% participation rate for PEI women as of 1996. The Canadian average was approximately 59%.
- PEI women with children at home were more likely to be active in the labour force than women with children at home in other provinces in 1996. The rate for PEI women with young children was substantially higher than for similar women in any other province or territory. (83% of PEI women with children under 6 years participated in the labour force compared to 69% of women in Canada with children under 6 years of age.)

Poverty

- As of 1996, 15% of the population of Prince Edward Island lived in low-income households. This was below the national average of 21%.
- In 1996, PEI's percentage of families below the low income cut-off was lower than the Atlantic and the Canadian average. However, the 1996 figure is a cause for concern because PEI exhibited the greatest growth over the previous year. From 1995 to 1996, the percentage of low income families increased from 14% to 19%, while the Canadian average remained stable.

Mobility

- On average, 11% of the population of Prince Edward Island moves within a year. This is considerably lower than the national average mobility rate of 17%.
- The most transient neighbourhoods are in Charlottetown.

Immigration

- Less than 1% of the population of Prince Edward Island are immigrants.
- Less than 1% of the population of Prince Edward Island speaks neither French nor English.

Family Type

- 21% of PEI families with children living at home were headed by single parents in 1996; and 84% of single parent families were headed by a female parent.
- The percentage of lone parent families was 19% in Prince County; 23% in Queens County; and 24% in Kings County.
- 23% of children age 0-6 (2650 children) live in neighbourhoods where the proportion of lone parent families is greater than the national average.

Health Indicators

- From 1991 to 1998, an annual average of 5% of babies born in PEI were considered to have low birth weight. In 1997, PEI had the second lowest birth weight in Canada, at 5.3%, compared to the national rate of 5.8%
- In 1998, 27% of all pregnant women attended prenatal classes.
- In 1998, 59.3% of all new Island mothers were breastfeeding when they left the hospital.
- In 1998, 29.3% of women smoked at the time of delivery.
- Approximately 3090 children six and younger (25%) on PEI live in areas considered to be at higher risk (5 or more challenges) as compared to 8595 (69%) who are living in lower risk areas. The higher risk areas tend to be located in the urban areas of Charlottetown and Summerside.

E. Socio-economic Status

Socio-economic status (SES) is an important variable in social research because it affects a person's "chances for education, income, occupation, marriage, health, friends, and even life expectancy."[3] This report describes children's outcomes and how they are affected by family socio-economic status, family processes, and community resources. Thus, it is helpful to have an understanding of the socio-economic backgrounds of the families in this community, as well as of how these are distributed geographically across the study area.

Socio-economic status is usually quantified as a composite measure comprising income, level of education, and occupational status. Accordingly, the measure of SES used here combines the income, level of education, and occupational status of the children's parents. Other family factors, such as family structure (e.g., single- or two-parent family), or whether the mother was a teenager when the child was born, are not dimensions of SES (although they are usually correlated with SES). Additional aspects of family and community structure will be presented in Section III.

[3] Miller, Delbert C. 1991. *Handbook of Research Design and Social Measurement*. Sage Publications, Inc. Newbury Park, CA. p. 327.

Figure 1-2 shows the distribution of socio-economic status in Prince Edward Island. The map shows a range in socio-economic status across the enumeration areas (EAs). Many of the enumeration areas have scores below –1, indicating low SES, and these are primarily located in easternmost and westernmost portions of the province. There is a relative concentration of wealthier EAs in the central area of PEI, around Charlottetown, with SES decreasing to the east and west.

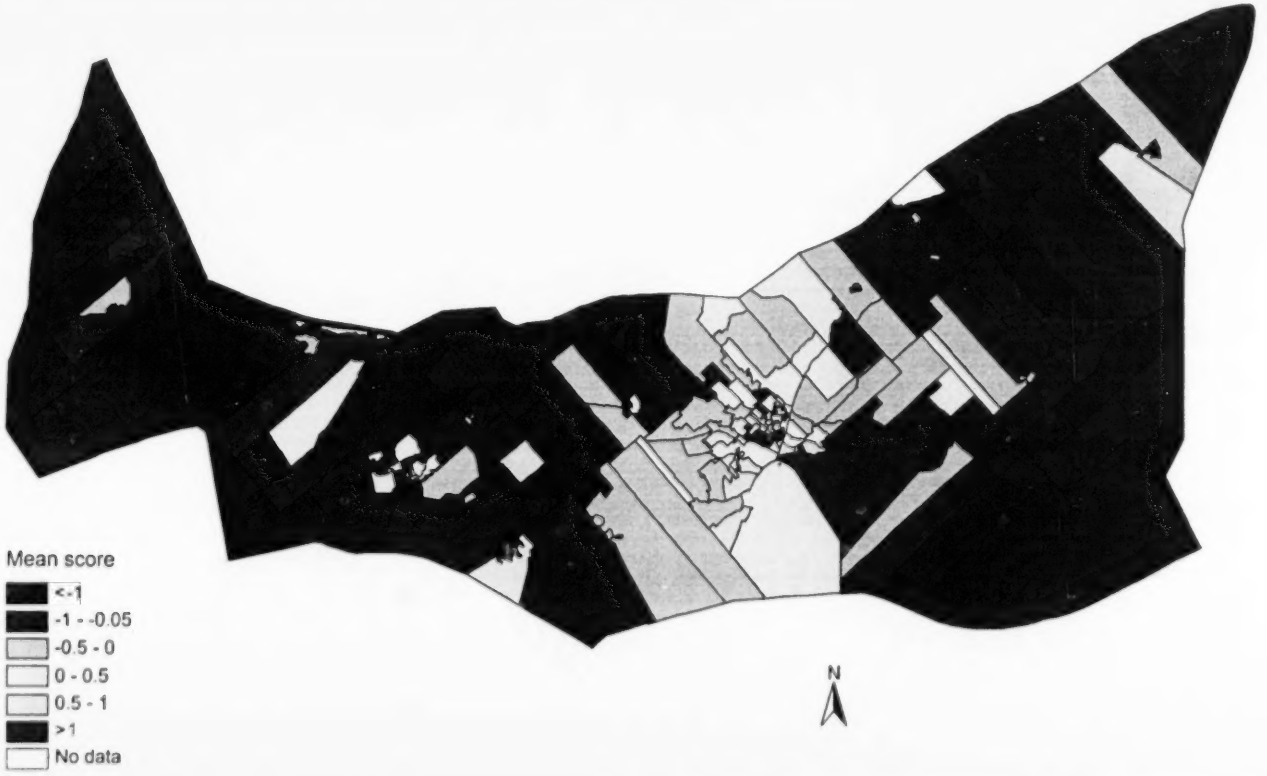
Despite the relatively low socio-economic status of some EAs in the province, the children of Prince Edward Island scored higher than the national averages for all outcomes measured with the EDI and the NLSCY instruments. Moreover, the spatial distribution of outcomes does not match SES patterns, indicating that there are many children in poor areas who are faring quite well.

Inset 1 - Socio-economic Status

The measure of socio-economic status (SES) for the map in Figure 1-2 was derived from the 1996 Canadian Census, based on data describing enumeration areas (EAs), which represents a geographic unit of about 400 families. The measure of SES is a composite score derived from census measures of family income, level of education, and the occupational status of adults living within each enumeration area. The composite scores were standardized, such that the average score for all EAs in Canada was zero, and the standard deviation was one. With this standardization, only about one in six EAs scored below -1, (low SES shown in dark red), and about one in six scored above +1, (high SES shown in dark green).

Figure 1.2

Socio-economic Status of Prince Edward Island



II. The Outcomes For Children of Prince Edward Island

A. How the outcomes were measured

This section provides more information about the specific measures of children's outcomes. A child's cognitive skills, behaviour, and physical health and well-being outcomes were measured in two ways, using the Early Development Instrument (EDI) and the National Longitudinal Study of Children and Youth (NLSCY) Community Study.

Five Domains for EDI (teacher report):

Physical health and well-being: children's motor skills, energy levels, fatigue, and clumsiness.

Social competence: self-confidence, tolerance, and children's ability to get along with other children, to accept responsibility for their own actions, to work independently.

Emotional health and maturity: children's general emotional health and maturity. It also identifies minor problems with aggression, restlessness, distractibility, or inattentiveness, as well as excessive, regular sadness.

Language and cognitive development: mastery of the basics of reading and writing, interest in books, and numerical skills (e.g., recognizing numbers and counting).

Communication skills and general knowledge: children's general knowledge, their ability to articulate clearly, and their ability to understand and communicate in English.

Inset 2 - The Early Development Instrument contained more than 70 questions, and asked teachers the following types of questions about each child in the class.

- **Would you say that this child follows instructions, accepts responsibility, and works independently?**
- **How often is the child too tired to do school work?**
- **Is the child well coordinated?**
- **Would you say that this child is upset when left by a caregiver, has temper tantrums, appears worried, or cries a lot?**

Teachers were asked to comment on the child's use of language, his or her interest in books; and his or her abilities related to reading and writing. They were also asked about children's communication skills and general knowledge.

Cognitive Skills (from the NLSCY - direct assessments of the child)

Vocabulary Skills (Peabody Picture Vocabulary Test, Revised – PPVT-R) assesses a child's receptive or hearing vocabulary. The children hear a word said aloud and are asked to point to one of four pictures that they believe corresponds to the word.

Developmental Level (Who Am I?): is based on copying and writing tasks, which are designed to test their ability to conceptualize and to reconstruct a geometrical shape and to use symbolic representations, as illustrated by their understanding and use of conventional symbols such as numbers, letters, and words. Children are asked to copy five shapes (such as a circle or a diamond) and to write their names, numbers, letters, words, and a sentence. Because the tasks are not dependent on language, *Who Am I ?* can be used to assess children whose knowledge of English or French is limited.

Number Knowledge Assessment: is designed to test the child's understanding of numbers. Children who do not have this understanding, or who are working in a language different from their mother tongue, often have difficulty mastering basic arithmetic and demonstrating number sense. The *Number Knowledge Assessment* evaluates children's understanding of quantity (more vs. less), their ability to count objects, their understanding of number sequence, and their ability to do simple arithmetic.

Behaviour Outcomes (from NLSCY Community Study – parent report)

Identifying a child's behaviour is based on assessments by the person most knowledgeable about the child, usually the mother.[4] The measurements comprise several questions, each with the same format. The mother is asked how often her child cannot sit still, is restless, or is hyperactive. She answers with one of three possible responses – "never or not true"; "sometimes or somewhat true"; and "often or very true." The assessment included the following elements.

Positive social behaviour: children who exhibit higher levels of positive social behaviour are more likely to try to help and comfort others. They may offer to help pick up objects that another child has dropped or offer to help a child who is having trouble with a difficult task. They might also invite their peers to join in a game.

Indirect aggression: this element identifies children who, when mad at someone, try to get others to dislike that person; who become friends with another for revenge; who say bad things behind the other's back; who say to others, "Let's not be with him/her"; or who tell secrets to a third person.

Hyperactivity: Hyperactive children cannot sit still; are restless and are easily distracted; have trouble sticking to any activity; fidget; cannot concentrate; cannot pay attention for long; are impulsive; have difficulty waiting their turn in games or groups; or cannot settle to do anything for more than a few moments.

Emotional disorder/anxiety: This element identifies children who seem to be unhappy, sad, or depressed; are too fearful or anxious; are worried; cry a lot; tend to be rather solitary; appear miserable, unhappy, tearful, or distressed; are not as happy as other children; are nervous, high strung, or tense; or have trouble enjoying themselves.

Physical aggression and conduct disorder: These children get into many fights. When another child accidentally hurts them (by bumping into them, for example), they assume that the other child meant to do it, and then react with anger and fighting. Also included are children who kick, bite, or hit other children; who physically attack people; and who threaten people, are cruel, or bully others.

B. What we learned from teachers: Results of the Early Development Instrument

The children of PEI scored well overall on the 5 domains, compared with children in the EDI–16 sample (see Table 2.1),[5] with the largest difference being for Communication Skills and General Knowledge at 1.2 points above the EDI–16, and the smallest difference for Emotional Health & Maturity and Language and Cognitive Development, both at 0.2 points above the EDI–16 sample.

[4] Statistics Canada trained personnel conducted the parent interviews by telephone only in English or French for the NLSCY. Parents without telephones or speaking other languages were not interviewed.

[5] The EDI sample size, N=459, included valid data only. To be included in the EDI sample size for Prince Edward Island children needed scores on at least 3 out of the 5 EDI domains. This explains why the EDI sample size (N=459) is different from the NLSCY sample size (N=508) for Prince Edward Island.

Table 2.1 – Mean Scores on the Early Development Instrument for the Prince Edward Island Pilot Community and the Comparison Sample (EDI–16)

	PEI UEY Community (N=459)		EDI–16 (N=28,250)	
	Mean	SD	Mean	SD
Physical Health and Well-being	**9.0**	0.9	8.6	1.2
Social Knowledge and Competence	**8.5**	1.5	7.5	1.9
Emotional Health and Maturity	**8.1**	1.3	7.9	2.0
Language and Cognitive Development	**8.3**	1.6	8.1	2.3
Communication Skills and General Knowledge	**8.4**	1.5	7.2	2.2

Note. Figures in bold text differ significantly (p < .10) from the Canadian mean.

Figure 2.1 – Box plots comparing the distribution of EDI scores for Prince Edward Island

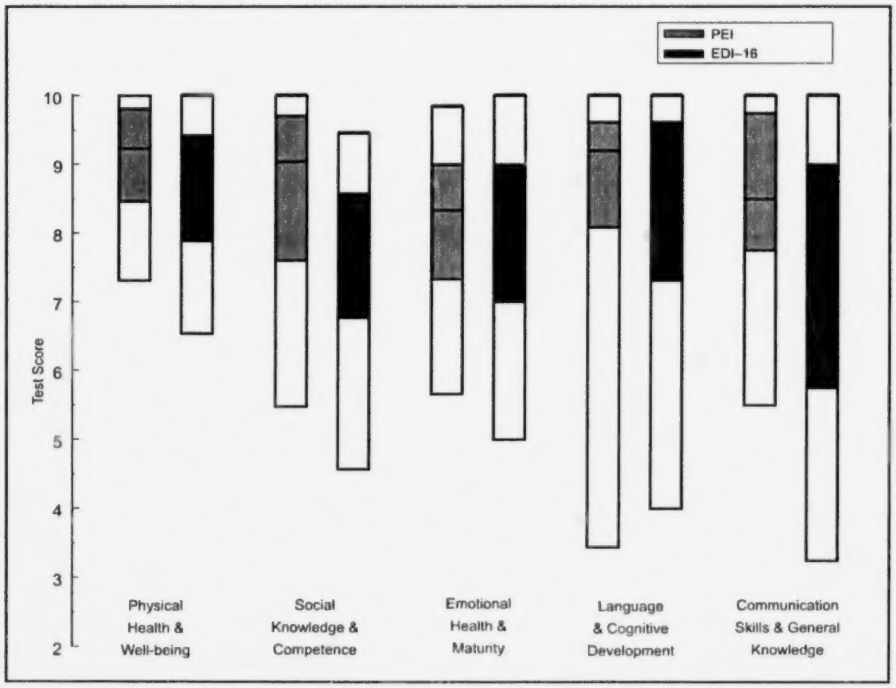


Figure 2.1 shows that the median scores for the EDI domains in Prince Edward Island are higher to those of the EDI–16 sample. The range of scores, indicated by the height of the boxes and by the inter-quartile range, is smaller than the range of the EDI–16 sample.[6] The figure also illustrates that there are fewer children in Prince Edward Island with very low scores, which is also evident in the next section.

Inset 3 shows the median and percentiles for the distribution of EDI scores for each group. The median represents the part at which 50% of the cases fall below and 50% of the cases fall above the median. Percentiles refer to the percentages of cases with values falling above and below them.

Inset 3 – Percentile Plots
The percentile plots display the distribution of the EDI scores for each group as follows:

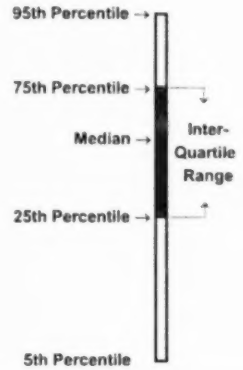
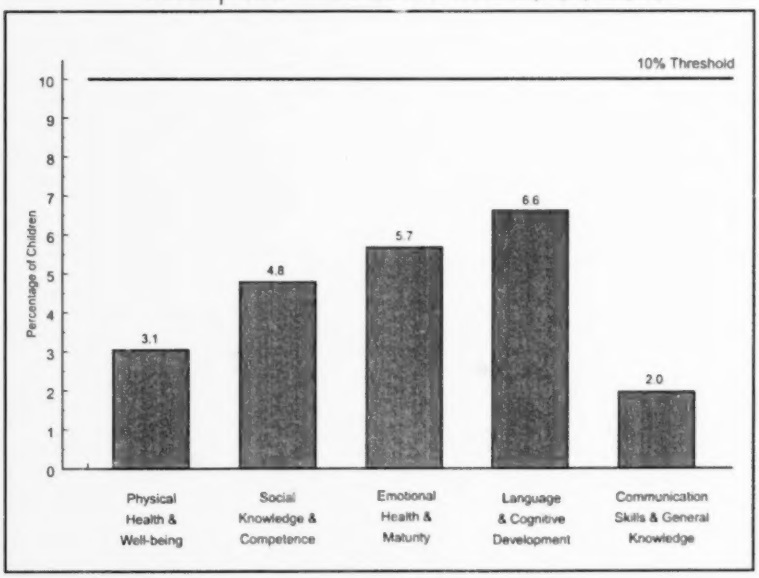


Figure 2.2 – Percentage of children with low scores on the Early Development Instrument (Prince Edward Island).



Significant differences ($p<.05$) are indicated with bold text.

[6] The longer the boxes, the greater range of variability in the EDI domain scores. For example, the Physical Health and Well-being domain has a short box which indicates that scores were very similar to one another. In contrast, the Communication Skills and General Knowledge domain has a long box for the EDI–16 sample which indicates that scores varied considerably, ranging from very low to very high scores.

Data from the EDI–16 were also used to establish a "low-score" threshold for each EDI domain. The low-score threshold scores were set to the tenth percentile, which means that 10% of all children in the sample scored below this score for each domain. Thus, if a community had typical results, we would expect 10% of its children to score below the same threshold scores for each domain. Typically, communities have the highest scores in the Physical Health and Well-being domain. This finding may not be surprising, given universal access to health care for Canadians.

In Prince Edward Island, children had low scores ranging from 2.0% to 6.6% across the five domains, which is significantly lower than the 10% threshold. The domains presenting more concern were Language and Cognitive Development (6.6%) and Emotional Health and Maturity (5.7%), however, the percentage of children for these domains was well below the 10% threshold (see Figure 2.2).

The data collected as part of the *Understanding the Early Years* study included information about where each child resided. Therefore, an analysis was conducted that would give some indication of how children's scores on the EDI were distributed geographically. To achieve this, we determined the average score within each enumeration area, for each domain of the EDI. We then "smoothed" the average scores for each enumeration area.

Figures 2.3 through 2.7 display the geographic distribution of the EDI scores for each of the domains. Although the distributions vary by domain, most of the higher scores, shown as yellow to green areas, are in the eastern, central, and western areas of this community. More northern and southern areas have lower scores, coloured orange to dark red.

It is important to recognize that while some areas have generally high scores, there will always be some children needing extra support in any given neighbourhood.

Inset 4 - Smoothing Data

This is a statistical technique that involves estimating the mean score for a particular EA together with the scores for all of the EAs that immediately surround it (the technical term is "geographically contiguous"). Smoothing the spatial data in this way provides a more accurate display of what we would expect if all kindergarten children in the community had been tested. It also ensures that the confidentiality of individuals, or small groups of individuals, is not compromised.

Figure 2.3 shows a fairly even distribution of scores for Physical Health and Well-being across PEI and indicates that some EAs in the north and south-central section of PEI received low scores. It also shows that a few EAs received very low scores. While some EAs have very high scores, many areas are also at, or slightly above, medium scores. There are also several contiguous EAs in south-west PEI that form a concentration of high scores.

Most areas of PEI received high scores on Social Knowledge and Competence, as seen in Figure 2.4. This tells us that the high scores shown in Table 2.1 are not the result of concentrated high scores in a few EAs. Rather, there is a fairly even distribution of strong results across the province, which also means that there is an even distribution across a wide range of socio-economic conditions.

Although Emotional Health and Maturity received the lowest score of all five EDI measures (see Table 2.1) for PEI, it was still 0.2 points above the EDI–16 sample. Figure

Figure 2.3

The Geographic Distribution of EDI Scores for Physical Health and Well-Being

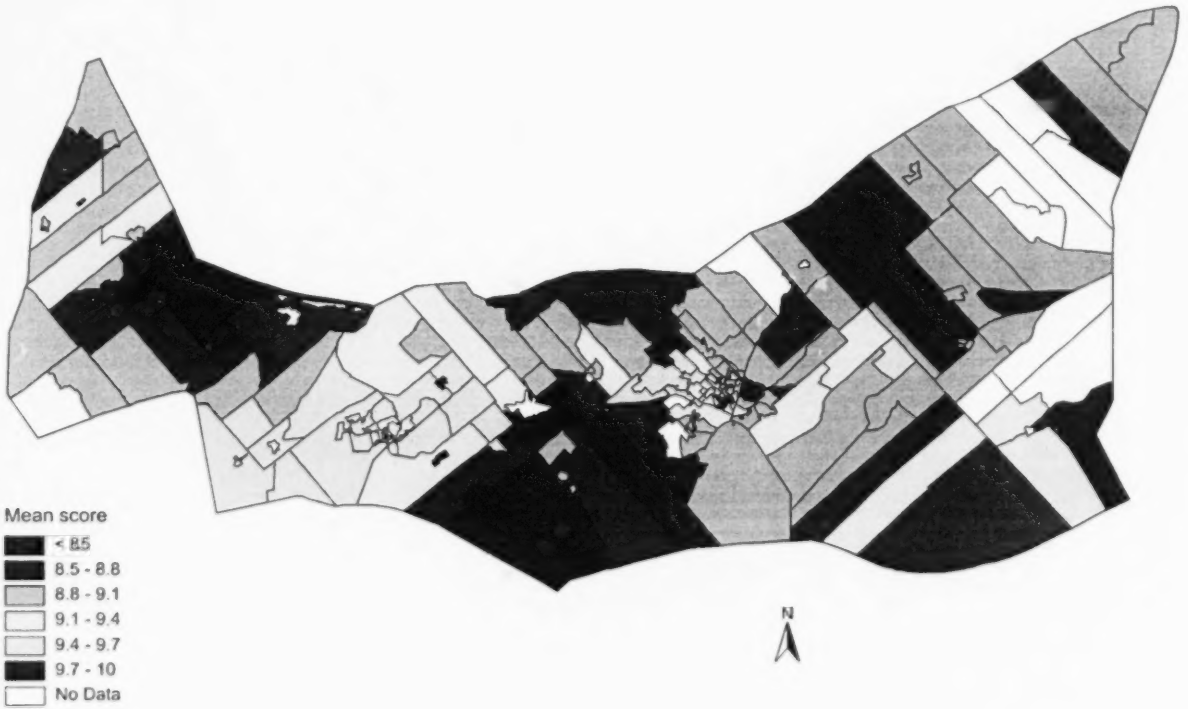


Figure 2.4

TThe Geographic Distribution of EDI Scores for Social Knowledge and Competence

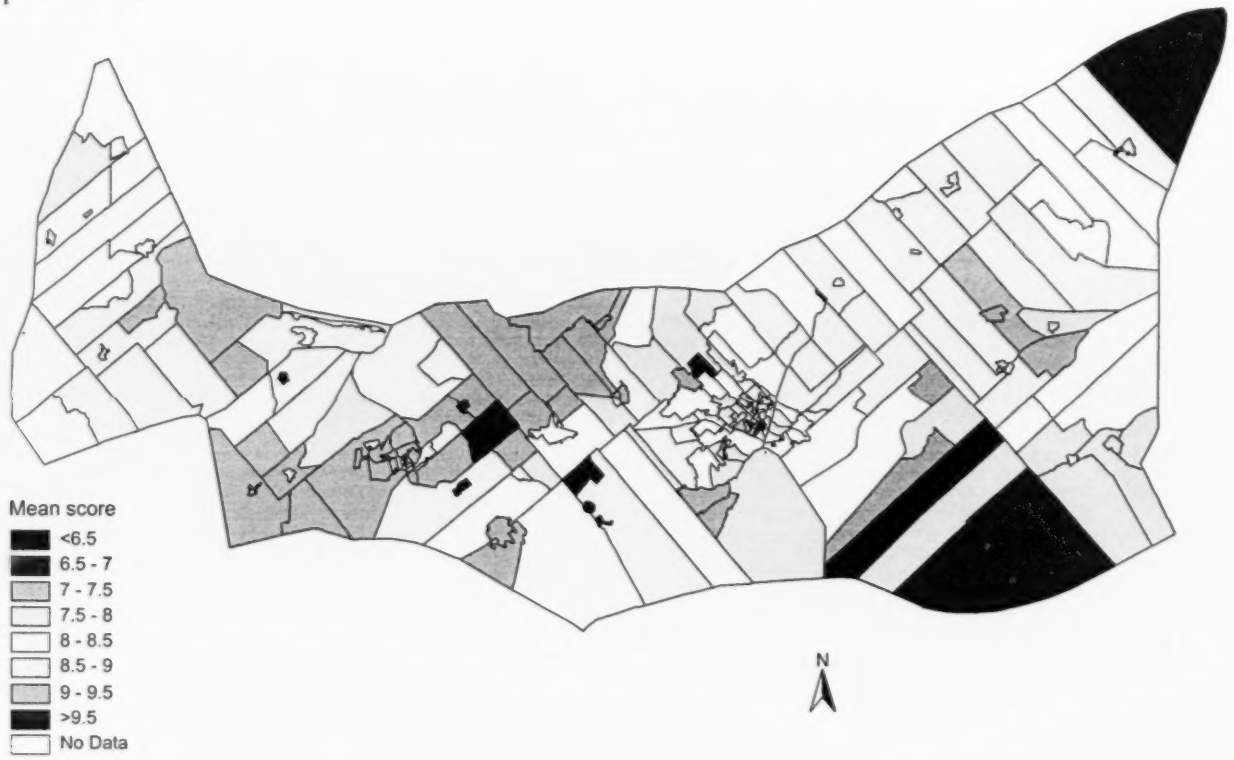


Figure 2.5

The Geographic Distribution of EDI Scores for Emotional Health and Maturity

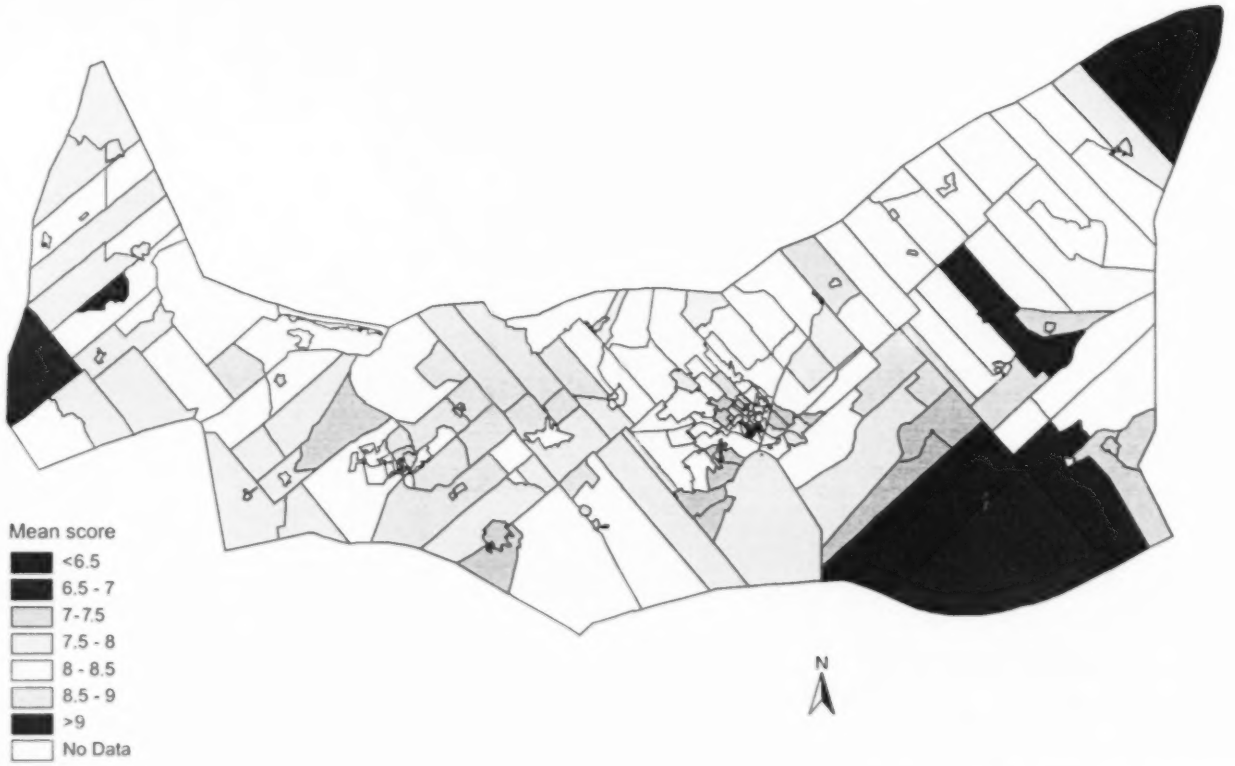


Figure 2.6

The Geographic Distribution of EDI Scores for Language and Cognitive Development

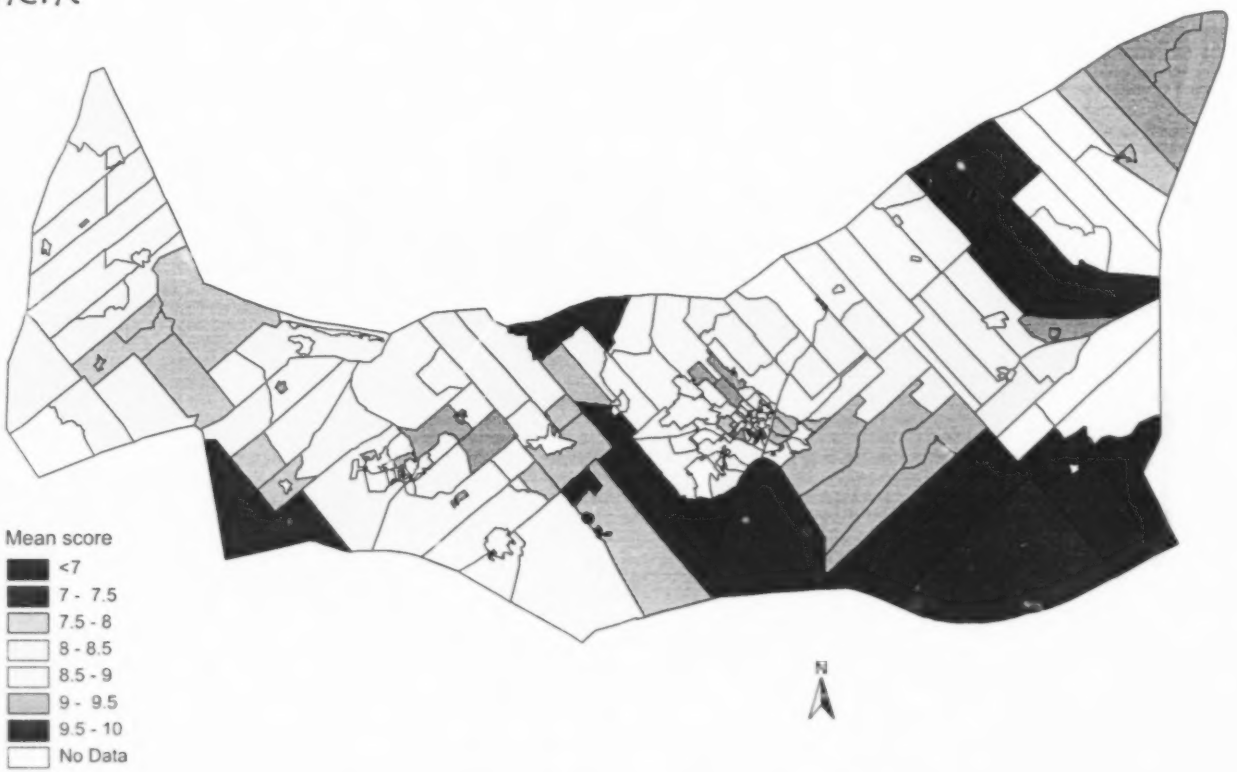
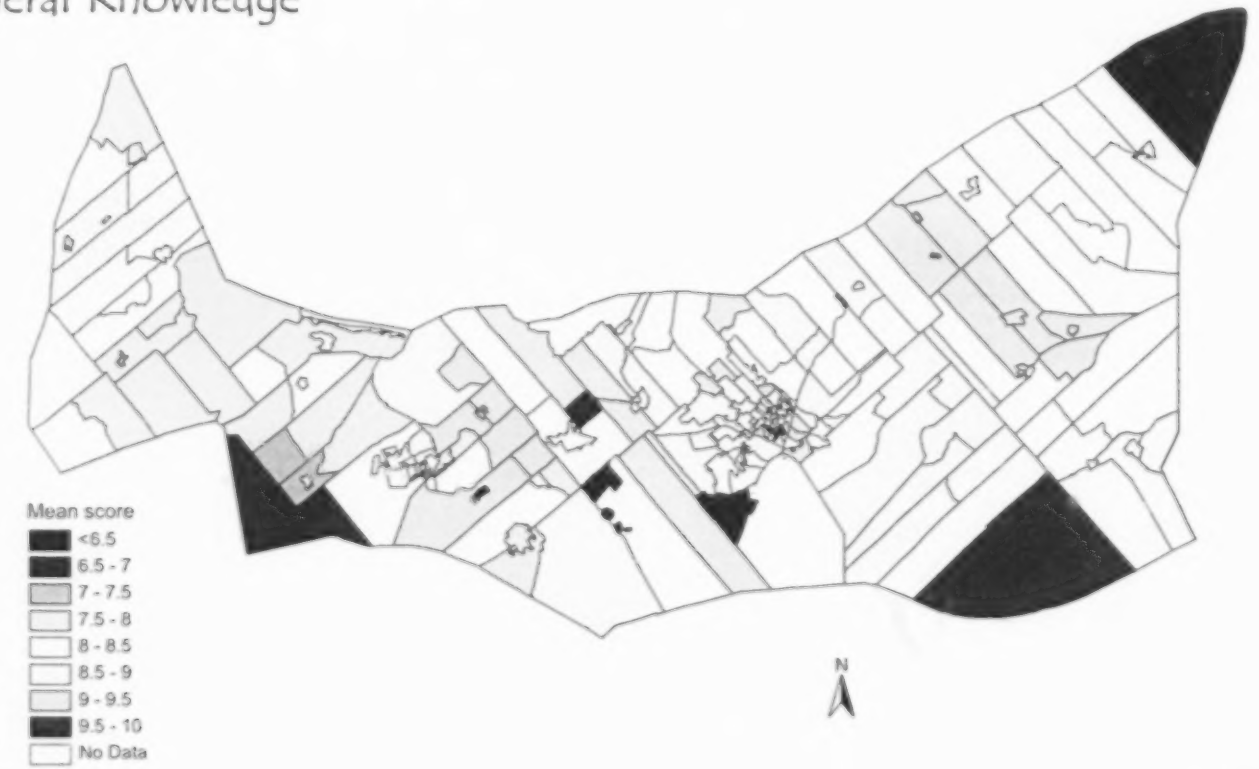


Figure 2.7

The Geographic Distribution of EDI Scores for Communication Skills and General Knowledge



2-5 shows that both higher and lower scores are fairly evenly distributed across the province.

Figure 2.6 shows that scores for Language and Cognitive Development are fairly evenly distributed across the province. Some of the lowest scores for this domain fall in the south-east portion of PEI, whereas the higher scores are evenly distributed throughout the island.

The children of PEI scored fairly well on Communication Skills and General Knowledge, and Figure 2.7 shows that mid- to higher scores are spread evenly throughout PEI. There were a few pockets of low scores in the central and south-west region of the province.

The maps do not exhibit a consistent pattern of outcomes across the landscape. Overall, the children of Prince Edward Island scored higher than average for EDI outcomes, and the spatial distribution of those results vary across the province for each test. One notable exception is the lower scores for Physical Health and Well-Being, compared to the other results for PEI.

The most rural EA (see the relatively large EA that is dark green in the south-east of PEI for each figure above) scored well above the average for 4 out of 5 EDI outcome. This result is somewhat counter intuitive. We might expect children in areas of higher concentrations of population (which is implied by the smaller size of those enumeration areas) to interact more frequently with other children and with adults, to have access to more resources and facilities, and to have better outcomes in the measures of development. This is not the case in PEI. Some of the children in the more remote, rural areas consistently scored higher than the children in more populated areas in terms of all outcomes measured.

These maps indicate that socio-economic background is not a definitive predictor of EDI outcomes, and that other factors that influence children's development should be considered. It is likely that these outcomes can be more fully explained if additional family and community factors are taken into consideration.

C. What we learned from parents, guardians, and children: NLSCY Community Study results

In this section, we discuss the results of the National Longitudinal Survey of Children and Youth Community Study, which measures children's cognitive skills, positive social behaviour, and behaviour problems.

Table 2.2 displays the means and standard deviations of scores on the *Developmental Assessment (Who Am I?)*, on the *Positive Behaviour Scale*, and on the *Receptive Language (PPVT-R) Test* for Prince Edward Island.

The scores on all three measures for Prince Edward Island are above 100 (although barely above 100 for positive behaviour), indicating that the children are achieving scores above the national mean (see Inset 5). The score for Receptive Vocabulary (PPVT) is substantially higher (105.5) than the national mean of 100. The spread of scores for Who Am I ? and Positive Behaviour are smaller than the national norm (15). This means that the children in PEI did not vary as much one from another when compared to the national norms. Figure 2.8 displays their distributions.

Table 2.2 – Mean Scores on Standardized Instruments from the NLSCY for Prince Edward Island UEY Community

	Mean	Standard Deviation
Who Am I? (N=492)	**101.4**	13.3
Positive Behaviour (N=459)	100.1	14.2
Receptive Vocabulary (PPVT-R) (N=501)	**105.5**	15.7

NLSCY (cycle 3) data.
Note. Figures in bold are significantly different from the national mean of 100.

Inset 5

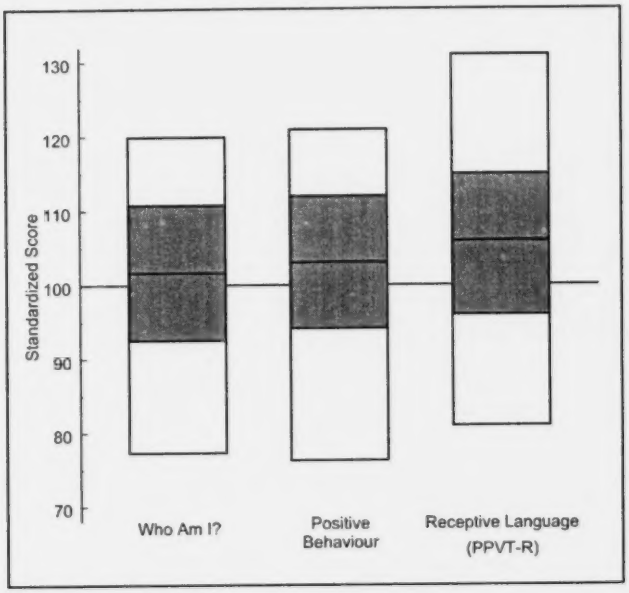
For the Receptive Language Test, national norms were available, and the scores are scaled such that the national mean is 100, and the standard deviation (a measure of the spread of scores) is 15. National norms were not available for the *Developmental Assessment* (*Who Am I?*), or the *Positive Behaviour Scale*, but to maintain some degree of comparability, we scaled them to have a mean of 100 and a standard deviation of 15 for the entire sample of children who participated in the first five studies of the UEY project (see Table 2.2).

Figure 2.9 shows the distribution of children with low scores on the *Developmental Assessment (Who Am I?)*, the *Positive Behaviour Scale*, and the *Receptive Language Test*. It also shows the percentage of children deemed to have a behaviour problem, based on four measures of behaviour (hyperactivity, emotional disturbance/anxiety, aggression/ conduct disorder, and indirect aggression).

For each measure, the score at the 10th percentile of the national NLSCY was used as the threshold to define a low score. The percent of children in the community scoring below the threshold provides a means of comparing against the 10% scoring below the threshold nationally.

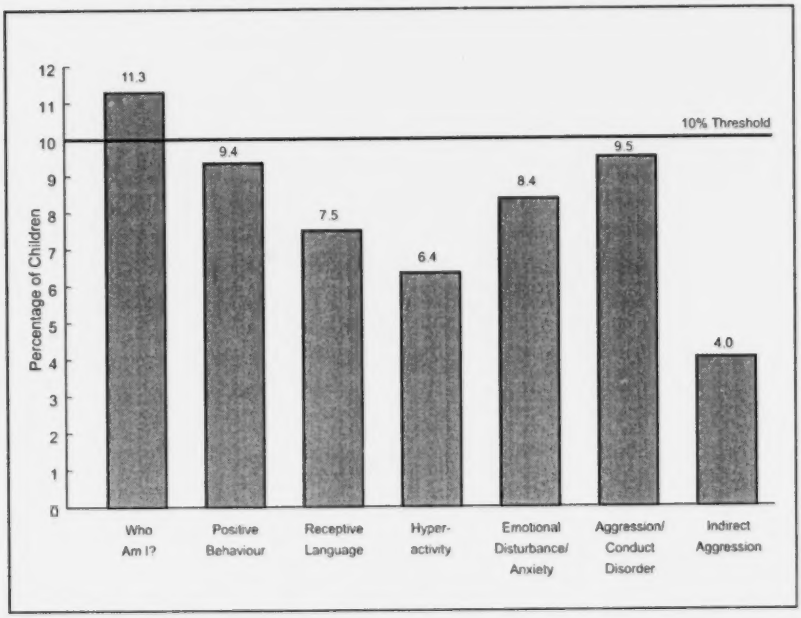
In Prince Edward Island, the percentage of children with vocabulary and cognitive difficulties, based on the *Who Am I ?* and the *Receptive Language Test* were 11.3% and 7.5% respectively. The former is slightly above and the latter is below the 10% threshold. On the behaviour measures, children in PEI were essentially consistent with national norms: 9.5% had low scores on agression/conduct disorder, 9.4% for the *Positive Behaviour Scale*, and 8.4% for emotional disturbance/ anxiety. Hyperactivity and indirect agression were lower than the national averages, 6.4% and 4.0%, respectively. Overall, the children of PEI fare well compared with children of the same age living elsewhere in Canada.

Figure 2.8 – Box plots comparing the distribution of scores on the Who Am I?, Positive behaviour, and the PPVT-R.



NLSCY data, 1999-2000.
Note: See Inset 3.

Figure 2.9 – Percentage of Children with Low Scores on the Cognitive and Behavioural Measures (Prince Edward Island)



NLSCY data, 1999-2000.

The study also included a direct measure of a child's understanding of the system of whole numbers. Scores were classified according to developmental levels:

- Have not reached level 1
- Reached level 1 (usually attained by 4-year-olds)
- Reached level 2 (usually attained by 6-year-olds)
- Reached level 3 (usually attained by 8-year-olds)

For all of the children who did the assessment across the first five UEY sites, only 1.2% had failed to reach level 1. The majority of children (29.4%) were at level 1, or had made the transition to level 2 (67.2%). Only 2.2% of the UEY children had reached level 3. These results are as expected given that the UEY children were 5 and 6 years old.

In Prince Edward Island, 76.4% of the children sampled had made the transition to at least level 2, which is considerably higher than the UEY average of 69.4%.

These findings also indicate that the children of this community scored higher than the children in the national sample. The scores on the *Receptive Language Test* are especially encouraging, because they are based on a test administered to children using a standard method and can be compared with scores of other children in the country. The median score of the children in Prince Edward Island on this test was about 7 points above the national median, and the range of scores above and below the median were about the same as in the national sample.

III. How Family Background Affects Children's Readiness for School

In this section, information about the relationship between family background and children's outcomes is presented, and the family background of the children of Prince Edward Island is described. The relationship between family background and children's outcomes is not straightforward. An important goal of *Understanding the Early Years* is to distinguish the effects of *family background*, and those associated with *family processes* and *community factors* on children's outcomes.

All three sets of contributing factors were measured. First, information on eight characteristics of family background are presented. In an earlier study of children's development, based on the national sample of children who participated in the first cycle of the NLSCY, these family background characteristics were significantly related to a range of children's developmental outcomes. The values, calculated for the eight family characteristics, are:

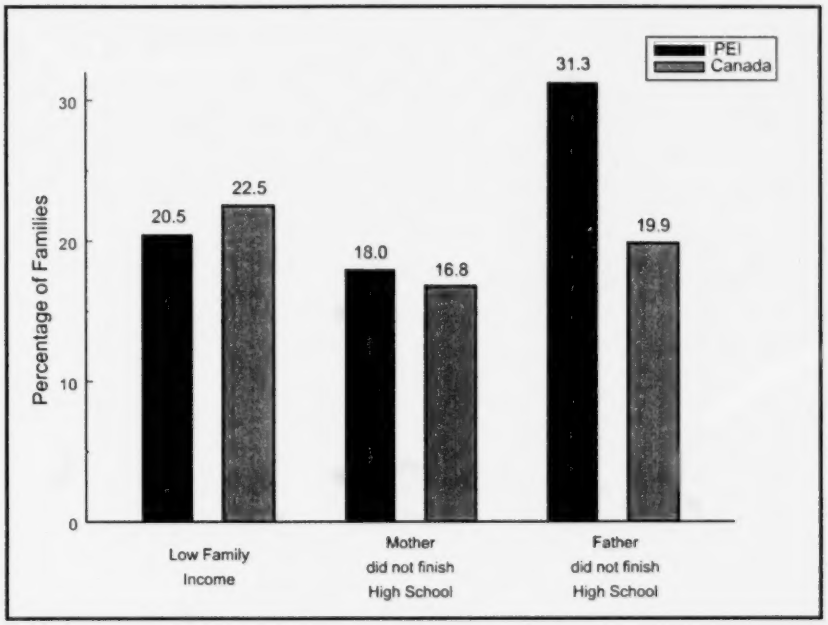
- **Family income** (in $10,000 units): considered to be low if less than $25,000.
- **Mother's level of education**: considered to be low if the mother did not complete high school.
- **Father's level of education**: considered to be low if the father did not complete high school.
- **Mother's employment status**: considered *not* working outside the home if the mother worked fewer than 25 weeks during the past year.
- **Father's employment status**: considered *not* working outside the home if the father worked fewer than 25 weeks during the past year.
- **Single-parent family**: only one parent or guardian living at home.
- **Number of brothers and sisters**: this is a simple count of the number of siblings living at home.

Figures 3-1 and 3-2 show the relative levels of income, education, employment, and single-parenthood for families at the community, as well as national levels. These findings indicate that family income and mother's education are near the national averages, while the percentage of single-parent families and father's unemployment are somewhat higher than national averages. Just over 20% of PEI families were considered low-income, compared to about 22.5% in Canada.

More children's mothers had completed high school (82%) than fathers (68.7%); and fathers had relatively low levels of education in PEI, compared with national averages.

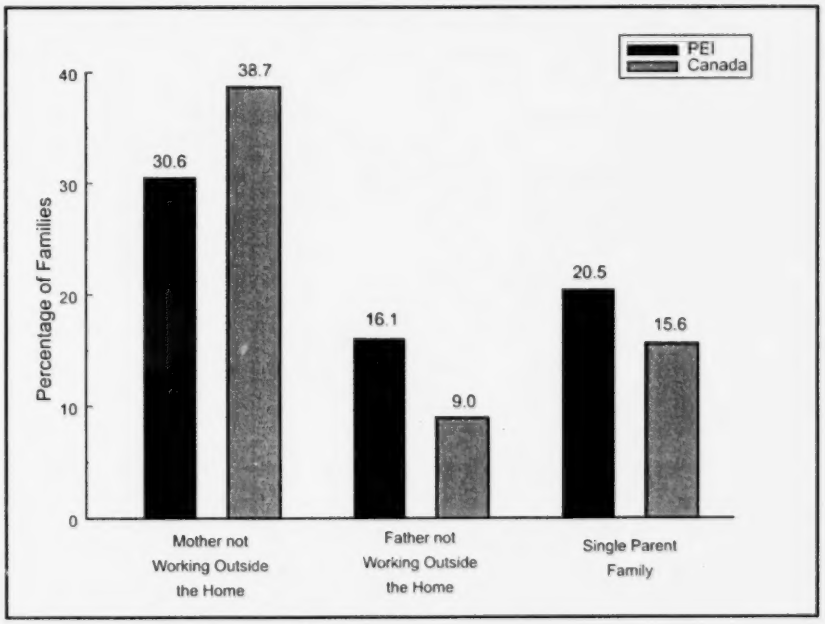
Unemployment levels are higher for fathers than mothers in PEI, compared to national averages. About 31% of mothers did not work outside the home, compared to 38.7% nationally, while 16.1% of fathers were not working outside the home, compared to 9.0% nationally. About 21% of households were headed by a single parent, above the national average of 15.6%.

Figure 3.1 – Family Income and Parents' Education



NLSCY for PEI (1999-2000) and national NLSCY (cycle 3).

Figure 3.2 – Parents' Employment and Marital Status



NLSCY for PEI (1999-2000) and national NLSCY (cycle 3).

The map of SES of PEI (Figure 1-2) shows that many EAs in the east and west of the province have low SES scores (indicated by red, and dark red). We would also expect that the majority of single parent families are also living in poorer areas. However, children's outcomes are uniformly quite high, despite the lower SES in the east and west of the province.

If one were to assume that socio-economic and demographic factors alone explain why some children are better prepared in their cognitive and behavioural skills when they enter school, one would expect an unequal distribution of children's outcomes. This is clearly not the case in PEI.

A. The Effects of Family Background Factors on Readiness

The analysis focussed on the factors contributing to whether or not a child had significantly low scores in one of the three developmental domains, these being the cognitive domain, the behavioural domain, and physical health and well-being.

A child was considered "ready" in the cognitive domain if he or she did not have a low score (e.g., below the 10% threshold) on the *Receptive Language Test*, the *Developmental Assessment (Who Am I?)*, or on the two cognitive domains of the Early Development Instrument.

Similarly, a child was considered ready to learn in the behavioural domain if he or she did not have a low score on the behaviour scale, or on either of the two domains of the EDI pertaining to behaviour, and did not have any one of the four behaviour problems.

A child was considered ready to learn in the physical health domain if he or she scored above the low-score threshold on the Physical Health and Well-being domain of the EDI.

For each of the family background factors, the odds-ratio associated with whether a child was ready in these three domains were estimated (see Table 3-1) using the sample of children from all of the first five UEY communities. In other words, the results indicated in Table 3.1 are not specific to Prince Edward Island.

Inset 6 - Odds-ratios

Odds-ratios denote the ratio of the odds of an event occurring after a one-unit change in the independent variable, compared with what it had been previously, if all other independent variables in the model are held constant.

For example, suppose the outcome variable of interest was whether a child repeated Grade 1. If the odds ratio for mother's education were .95, it would indicate that the odds of a child repeating a grade, if his or her mother had 13 years of education, is only 95% as large as the odds for a child whose mother had completed 12 years of education (or 12 years compared with 11 years, etc.).

Thus, in this example, increasing levels of maternal education reduce the odds of a child repeating Grade 1. When an odds-ratio is greater than 1.0, it indicates that the odds of experiencing the outcome (e.g., repeating Grade 1) are greater with increasing levels of the factor being considered.

Table 3.1 – The Relationship Between a Child's Readiness to Learn and Family Background

	Children's Outcomes		
	Cognitive	Behavioural	Physical Health & Well-being
Family Income ($10,000 units)	**1.16**	**1.11**	1.02
Mother's Education (years)	**1.10**	1.02	**1.10**
Father's Education (years)	1.04	0.99	1.10
Mother Not Working Outside Home	0.98	1.15	1.11
Father Not Working Outside Home	1.22	**1.48**	1.17
Single Parent Family	0.98	0.96	0.70
Number of Brothers and Sisters	**0.90**	**0.91**	**0.81**

NLSCY in relation to 3 EDI domains for the first five UEY communities.
Note: Figures in bold text are statistically significant at $p<.10$.

The results indicate that family income and the educational level of the mother are strong determinants of cognitive development.

For example, the odds of being ready to learn for a child living in a family with an income of $40,000 is about 16% greater than a child who had similar background characteristics, but had a family income of $30,000.

Similarly, each additional year of education of a child's mother increases the odds of being ready to learn by about 10%. In contrast, children with more siblings were more likely to have a low score on at least one of the cognitive measures. Each additional brother or sister decreases the odds of being ready to learn by about 10%.

The results for the behavioural domain are similar. Family income and small family size are protective factors; that is, they increase the likelihood that a child will not have a behaviour problem upon entry to school. However, the mother's level of education was not statistically significant. The results also indicate that children whose fathers are unemployed were more likely to be ready for school. This finding is somewhat surprising; however, it may be that fathers who are unemployed are more likely to spend time engaged with their children in activities that have a positive effect on their behaviour.

With respect to physical health and well-being, two factors emerged as statistically significant: mother's education and number of siblings. Children were less likely to have experienced problems in this domain if their mothers had a high level of education, and if they had relatively few brothers and sisters.

Given these relationships between children's outcomes in these domains and family income and maternal education, and the relatively low income and levels of education of the families in this particular community, the relatively strong performances of the children on some outcomes, and low performance on others, are especially noteworthy. It suggests that there must be many other aspects of family and community life that have influenced children's outcomes. We examine these factors in the next section.

IV. What Families and Communities in Prince Edward Island Can Do to Improve Children's Outcomes

Many studies of childhood outcomes have been based on investment theory, an economic theory that supposes that children receive an endowment from their parents. This includes biological attributes and a cultural endowment determined by their parents' norms, values, and preferences; their income and wealth; and their access to resources. Parents invest time and money in their children, primarily through expenditures on education and health care.

Although the emphasis of investment theory has been on the transmission of earnings and wealth from one generation to the next, the idea that children's social, emotional, and intellectual development depends on parents' investments is firmly rooted in the child development literature. These investments can include, but are not limited to, time spent with children.[7]

Other theories suggest that childhood outcomes result from family and parenting practices. Children are less likely to have behaviour problems or poor cognitive development if their parents are supportive, responsive, and affectionate.

Parents who are depressed or severely stressed are more likely to be tense and irritable with their children, and become less engaged in activities that contribute to their emotional and intellectual development. Marital relations become strained, and the overall ability of the family to function as a cohesive unit becomes compromised. These pressures also affect children's development.

Recent research based on the National Longitudinal Survey of Children and Youth,[8] as well as analyses of the UEY communities' data reported here, consider the influence of both family processes and community factors on childhood outcomes.

The most important family processes include the parents' "style" of parenting, maternal depression, the cohesiveness or adaptability of the family, and the extent to which children are regularly engaged with learning activities.

Child care plays a critical role. Many children have better outcomes if they have quality daycare, especially those from families of low socio-economic status.

Parents' ability to provide a supportive environment can be either helped or hindered by the neighbourhood and wider community. The quality and safety of the neighbourhood is important, but social factors also play a role.

Subsequently, we are interested in the degree of social support available to parents, and the extent to which parents have access to information and support through a strong network of friends and colleagues – factors embodied in the term "social capital." Social support and high levels of social capital are easier to build in a community when the population is not transient; thus, we also expect that child development may be affected by the extent to which the population is stable.

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7 McCain, M.M., & Mustard, J.F. (1999). *Reversing the Real Brain Drain: Early Years Study Final Report.* Publications Ontario.

8 Willms, J. D. (in press). *Vulnerable Children: Findings from Canada's Longitudinal Study of Children and Youth.* University of Alberta Press.

Finally, children's development is more likely to flourish if families have access to educational, cultural and recreational resources. These are important not only because they contribute directly to children's development, but also because they foster social support and increase social capital within the community.

As we have seen in the previous two sections, the children of Prince Edward Island fared very well on the five outcome domains of the EDI compared to the EDI–16 sample, and fairly well on the NLSCY compared to national standards of performance.

This is at odds with what one might expect, given the range of socio-economic conditions in which they are living. Many of the children live in less affluent families than other Canadian children, and on average their parents have lower levels of employment. The percentage of children living in single-parent homes is higher than the Canadian average. Therefore, factors other than those associated with their immediate socio-economic status must also be at play.

The strategy was to combine a large number of family and community variables into ten indicators that are essential for successful child development. These indicators had to meet two criteria.

- There had to be evidence that the indicators were related to children's developmental outcomes, either from previous literature, or through analyses of the UEY and NLSCY data.
- They had to be amenable to change through the efforts and actions of families and communities, through the support of community and volunteer agencies, and through social policy at the local, provincial and national levels.

In this section, the ten indicators are described; the results of the analyses with the UEY data are presented, which give some indication of the relative importance of these factors; and the scores on these indicators for Prince Edward Island are shown.

A. Ten Indicators of family and community success

Each of the indicators is presented from 0 to 10, with 10 being the highest positive score.

1) Positive Parenting

This indicator was based on research that has shown that children have better developmental outcomes when their parents monitor their behaviour, are responsive to their needs, and encourage independence with a democratic approach.

This "style" of parenting, called "authoritative" parenting, stands in contrast to "authoritarian" parenting, characterised by parents being highly controlling and somewhat harsh in their approach to discipline, and "permissive" parenting, characterized by parents being overly-indulgent and setting few limits for behaviour.[9]

The scale includes items assessing the extent of positive interactions – how often the parents praise the child, how often they talk and play with them, and how often they laugh together. It includes items pertaining to whether parents are consistent and rational in their approach.

[9] Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance abuse. Journal of Early Adolescence, 11(1), 56-95 .

For example, parents were asked about situations when their child was misbehaving: were they likely to raise their voice, scold or yell at their child, calmly discuss the problem, or discuss alternate ways of behaving? Did they often have to punish their child repeatedly for the same behaviour? Did their punishment depend on the mood they were in?

2) Parental Engagement

This indicator measures the extent to which parents are engaged with their child in learning activities. It includes information on whether and how often parents tell stories to their children, teach them letters and numbers, teach them how to read, and encourage them to use numbers in their day-to-day activities. It also measures whether and how frequently children look at books and magazines, discuss them with their families and friends, and write or pretend to write with markers or pencils.[10]

3) Family Functioning

The concept of family functioning refers mainly to the cohesiveness and adaptability of the family. It concerns how well the family functions as a unit, more so than the relationships between spouses, or between parents and their children. A number of studies have shown that family functioning is related to children's developmental outcomes, especially children's behaviour.

In this study, it is assessed with twelve items pertaining to a family's ability to communicate, make decisions and solve problems as a group, discuss feelings and concerns, get along together, and feel accepted for who they are.

4) Maternal Mental Health

The well-being of parents affects their parenting style and ability to respond to and engage their children in various learning activities.[11] Mothers' well-being has a stronger effect on children's outcomes than fathers' well-being.

This indicator was based on twelve items that are commonly used to measure depression. For example, it includes questions about whether the person regularly experiences feelings of depression and loneliness, crying spells, low energy levels, an inability to concentrate and sleep, and a sense of being disliked by others. The scores were coded such that high scores indicate positive mental health; that is, the absence of depressed feelings.

5) Social Support

The level of social support available to parents affects their well-being, and indirectly affects their ability to function as parents and as role models within their family and community.

This indicator measures the level of support available to the respondent, and describes how much support that person receives from a community of friends and family members.

To determine this, respondents were asked whether they could get help in various situations, including emergencies; whether they were able to confide in and seek advice from others; whether they felt close to another person; and whether they felt they were a member of a group of people whose attitudes and beliefs they share.

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[10] McCain, M.N., & Mustard, J.F. (1999). *Reversing the Real Brain Drain: Early Years Final Report.* Publications Ontario.

[11] Brooks-Gunn. J., Duncan, G.J., & Britton, P.R. (1999). Are Socioeconomic Gradients for Children Similar to Those for Adults? Achievement and Health of Children in the United States. In D.P. Keating's & C. Hertzman's (Eds.) *Developmental Health and the Wealth of Nations.* The Guilford Press. New York.

6) Social Capital

A separate, but related indicator, social capital is a measure of the level of support available collectively to groups within a community. Thus, it comprises information about the ability of neighbours to work together to solve problems, help each other, watch out for one another's children, and provide children with role models outside their immediate families.

7) Neighbourhood Quality

This indicator gauges the parents' perception of their neighbourhood as a place to raise children. It measures features such as cleanliness, safety, quality of schools and nursery schools, adequacy of facilities for children (such as pools and playgrounds), health facilities, and the level of involvement of residents. It also asks people to rate their present neighbourhood in comparison with the one they had lived in previously.

8) Neighbourhood Safety

This indicator assesses the level of the parents' concern for children's safety in their neighbourhood. For example, parents were asked about the safety of parks and other play-spaces, crime rates, problems with older children in the neighbourhood, and whether they worried about children playing outside during the day.

9) Use of Resources

This indicator measures the use of *recreational facilities*, including parks, trails, play-spaces, skating rinks, pools, camping areas, skiing facilities, amusement parks, and community centres; *educational services*, such as libraries, science centres, family resource centres, and drop-in programs; and *cultural resources*, such as art museums, plays, musical performances, sports events, and movies.

10) Residential Stability

This factor was derived from a factor analysis of four variables measured as part of the 1996 Canadian census that assessed the degree of transience of the local population. These included the proportion of people who had moved in the past five years or the past year, as well as the percentages of single parents and elderly people in the neighbourhood. It was scaled in positive terms, such that a high score indicates greater stability. The average score for all enumeration areas in Canada is 5 on the 10-point scale.

B. The relationship between neighbourhood factors and children's outcomes

In the third section, we used statistical tools to estimate the relationships between family background factors and children's readiness to learn in three developmental domains: the cognitive domain, the behavioural domain, and physical health and well-being.

In this section, we extend that analysis to include the ten family and neighbourhood factors described previously. This is a fairly conservative test of the effects of these factors, as the analysis is essentially asking, "What are the effects of these factors, after taking account of children's family backgrounds?"

As in Section III, the results are presented as odds-ratios (see the Inset in Section III). For the ten scales describing family processes and neighbourhood factors, these provide an estimate of the effect associated with a one-point increase on the respective scale. The results, which are based on the combined data from the first five UEY communities, are presented in Table 4-1.[12]

[12] The co-efficients in Table 4.1 are slightly lower than in Table 3.1 because community factors are correlated with family background. For example, a family with a higher income generally lives in a relatively safer neighbourhood with a higher neighbourhood quality.

Table 4.1 – The Relationship Between Readiness to Learn Outcomes and Family Background, Family Processes, and Community Factors

	Five UEY Communities' Children's Outcomes		
	Cognitive	Behavioural	Physical Health & Well-being
Family Background			
Family Income ($10,000 units)	**1.14**	**1.08**	1.02
Mother's Education (years)	**1.07**	0.99	1.07
Father's Education (years)	1.04	1.00	**1.13**
Mother Not Working Outside Home	0.97	**1.24**	1.13
Father Not Working Outside Home	1.18	**1.38**	1.17
Single-Parent Family	1.01	1.00	0.70
Number of Brothers and Sisters	0.92	0.96	**0.84**
Family Processes			
Positive Parenting Practices	1.07	**2.31**	**1.37**
Engagement in Learning Activities	**1.10**	1.01	1.08
Family Functioning	0.98	1.05	**0.86**
Maternal Mental Health	0.98	**1.12**	0.99
Community Factors			
Social Support	1.02	**0.87**	1.07
Neighbourhood Quality	1.03	1.01	1.00
Safe Neighbourhood	1.02	**1.12**	0.93
Social Capital	1.01	1.06	1.06
Use of Resources	**1.11**	1.04	1.10
Residential Stability	**1.06**	1.02	**1.13**

NLSCY in relation to 3 EDI domains for the first five UEY communities.
Note: Figures in bold text are statistically significant at $p<.10$.

Of the ten factors, three have statistically significant relationships in the cognitive domain: engagement in learning activities, use of community resources, and residential stability.[13]

The engagement in learning results suggest that a child in a family with a rating of 6.0 on the 10-point scale would be 10% more likely to be ready to learn in the cognitive domain than a child living in a family with a rating of 5.0 (or a family rated 5.0 instead of 4.0, etc.). This means that parents who spend time reading to their children, and teaching them numbers and letters, have children with better cognitive scores.

An increase of one-point in "use of community resources" was associated with an 11% increase in cognitive scores. In other words, families that make use of various recreation, educational, and leisure facilities, such as pools, play-spaces, libraries, drop-in programs, art museums, and movies, have children with better cognitive scores.

Similarly, an increase of one point in residential stability was associated with a 6% increase in scores, which indicates that families with fewer moves have children with higher cognitive scores.

[13] Numbers above 1.0 indicate a positive relationship whereas numbers below 1.0 indicate a negative relationship.

For the behavioural domain, positive parenting was by far the most important factor. A one-point increase on the positive parenting scale was associated with a dramatic increase in good behaviour outcomes of 131%. This means that parents who monitor children's behaviour, are responsive to their needs, and encourage independence are much more likely to have children without behaviour problems.

Two other factors had statistically significant and positive effects: the mental health of the mother and living in a safe neighbourhood. Each of these factors was associated with a 12% increase in the likelihood of a child being ready to learn in the behavioural domain. This means that a mother with good mental health and families who lived in safe neighbourhoods had children with fewer behavioural problems.

Social support had effects contrary to expectations. This may have arisen because parents whose children have behavioural problems may be more aware of the social support available to them, and therefore reported higher levels of support.

Residential stability also had a positive effect, meaning that children living in stable neighbourhoods were more likely to have positive health outcomes. The effects of family functioning were anomalous in this case, suggesting that families who have a child with health problems are more likely to be cohesive and adaptable.

Finally, for physical health and well-being, positive parenting again emerged as the most important factor. The analysis indicates that a one-point increase in the positive parenting scale is associated with a 37% increase in the likelihood of a child being ready to learn in this domain.

C. Community Indicator Scores for Prince Edward Island

Figure 4-1 displays the Prince Edward Island scores for each of the ten indicators described in this section. The figures in parentheses indicate the average scores for the five UEY communities.

The scores for Prince Edward Island were higher than the UEY scores on 7 of the 10 measures. Prince Edward Island received relatively high scores for measures of maternal mental health (9.0), and for all aspects community life: social support (7.8), social capital (7.3), neighbourhood quality (6.8), neighbourhood safety (7.9), and residential stability (5.9).

From these results, we can infer that PEI is a relatively pleasant place to live, raise children, and grow up, with an apparent strong commitment to community and a predictable, stable lifestyle for children.

Prince Edward Island had somewhat lower scores on family functioning (7.4 compared to 7.5) and parental engagement (6.8 compared to 7.2).

As described, there are a total of ten indicators of family and community success. Each indicator scale has a range from 0 to 10, with 10 being a positive score. A total score, out of 100, can be calculated for each community. The total score out of 100 for Prince Edward Island is 69.7, which is 2.8 points above the average of 66.9 for the five UEY communities.

PEI scored higher than the UEY average on use of resources (3.4 compared to 3.2). However, because the overall use of resources is quite low for the UEY sample, we further explored this variable for Prince Edward Island to find out whether the problem stems mainly from a lack of availability of the resources.

Figure 4.1 – Community Indicator Scores for Prince Edward Island

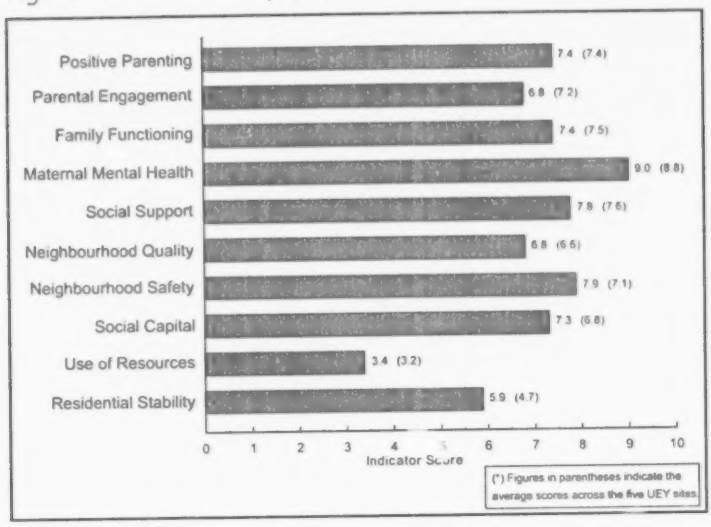
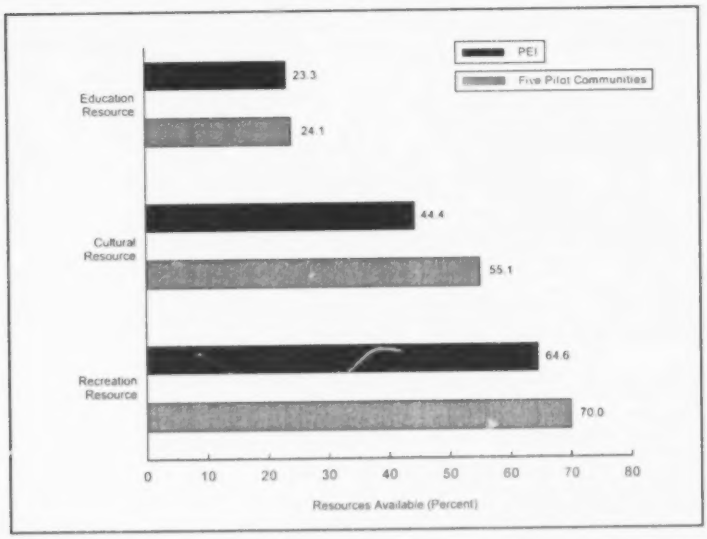


Figure 4.2 – Availability of Resources for Prince Edward Island and the Five UEY Communities



NLSCY for PEI and national NLSCY (cycle 3).

For each of the three types of resources, parents were asked, "Are most of these resources located within walking distance or within a short drive or bus ride?" The results, presented in Figure 4.2, indicate that availability for each of the three types of resources is lower in PEI than for the combined UEY communities. For example, 23.3% (24.1%) for educational resources are available, 44.4% (55.1%) for cultural, and

64.6% (70.0%) for recreational resources in PEI. However, overall, approximately two-thirds of parents reported that recreational resources were readily accessible in PEI.

Figure 4.3 illustrates the distribution and the location of community centred resources. Figure 4.4 shows the community centred resource s that are available in Charlottetown. Resources that encourage community activity include community support and safety programs, libraries and exchange programs, arts and recreation programs and facilities, and recreation and community centres.

Figure 4.5 illustrates the distribution and the location of the preventative health services on Prince Edward Island. Figure 4.6 shows the preventative health resources found in Charlottetown. Preventative health resources include nutrition programs, counselling programs, health education, prevention and intervention programs, family violence prevention and education, and medical clinics.

The NLSCY data also covered day-care. Early childhood programs, such as those offered at daycare, can increase a child's readiness for learning, thereby enhancing his or her lifelong academic and personal development.

But for these programs to be effective, they need to be developmentally appropriate and responsive to the experiences, backgrounds and needs of the children.[14] Research suggests that, regardless of a child's socio-economic status, four types of resources contribute to optimal child development: childcare centres, pre-schools, nursery schools, and kindergartens.

Moreover, research based on the first cycle of the NLSCY suggests that receiving daycare, either licensed or unlicensed, has positive effects on the language skills of children from low-income families. However, children from relatively affluent families tend to fare equally well across various types of care arrangements.[15]

In 1996-97, according to NLSCY, about one-half (48.4%) of the population of 5- and 6-year-old children in Canada received care for at least part of the day by someone other than their parents, compared to 63.6% of children in PEI.

Figure 4.7 displays the percentage of children in differing types of care arrangements for Prince Edward Island, compared with the figures for Canada for 1996-97, derived from NLSCY.

The children in this community were much more likely to receive daycare, compared with children living elsewhere in Canada, and were more likely to receive care from a relative living either inside or outside the home.

Consistent with the national average, 15.8 % of the children in PEI were cared for at home by a non-relative; this is the most popular type of care arrangement in Canada. A relatively high percentage of children – 7.1% compared with 5.2% – were cared for outside the home by a non-relative.

[14] Doherty, G. (1997). *Zero to six: The basis for school readiness.* Hull, Quebec: Human Resources Development Canada, R-97-8E.

[15] Kohen, D., Hertzman, C., & Willms, J. D. (in press) The importance of quality child care. In J. D. Willms (Ed.), *Vulnerable Children: Findings from Canada's National Longitudinal Study of Children and Youth.* University of Alberta Press.

Figure 4.3

Community Resources in Prince Edward Island

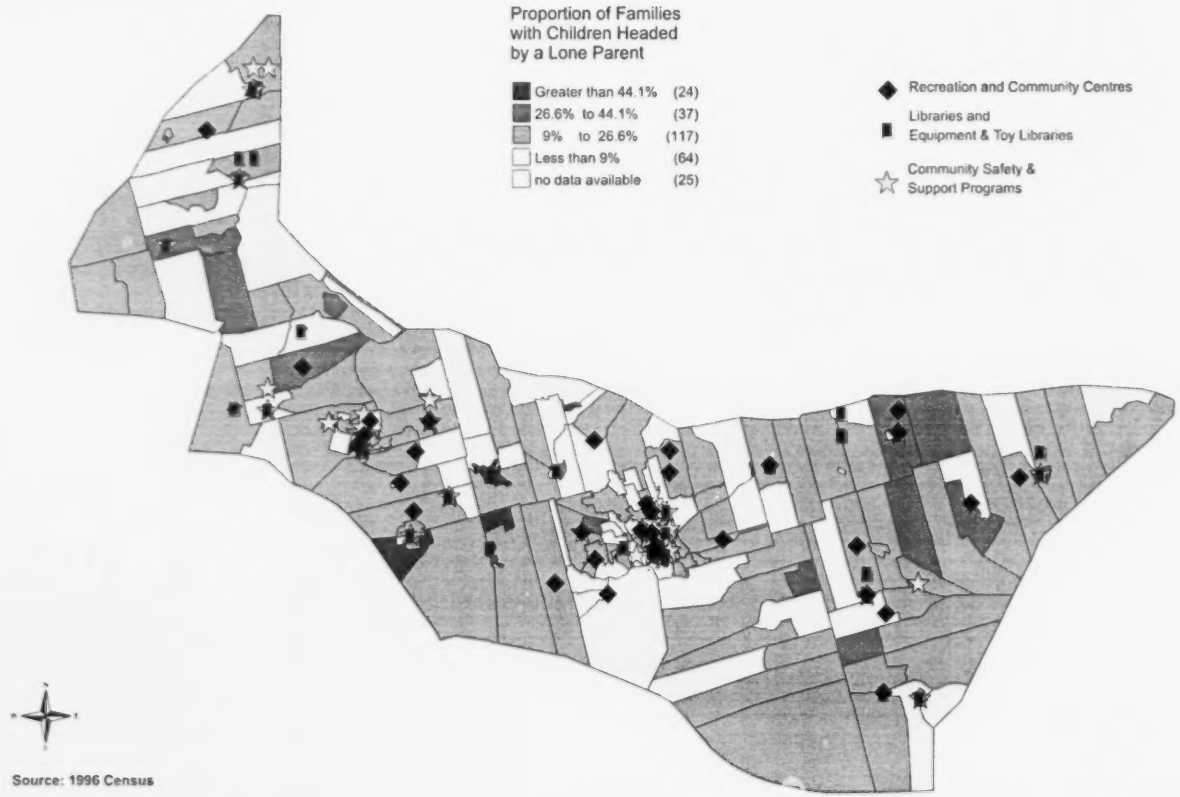

Proportion of Families with Children Headed by a Lone Parent
Greater than 44.1% (24)
26.6% to 44.1% (37)
9% to 26.6% (117)
Less than 9% (64)
no data available (25)
Recreation and Community Centres
Libraries and Equipment & Toy Libraries
Community Safety & Support Programs
Source: 1996 Census

Figure 4.4

Community Resources in Charlottetown

Proportion of Families with Children Headed by a Lone Parent
Greater than 44.1% (24)
26.6% to 44.1% (37)
9% to 26.6% (117)
Less than 9% (64)
no data available (25)
Recreation and Community Centres
Libraries and Equipment & Toy Libraries
Community Safety & Support Programs

Figure 4.5

Preventive Health Services in Prince Edward Island

Figure 4.6

Preventive Health Services in Charlottetown

Figure 4.7 – Types of Care Arrangements

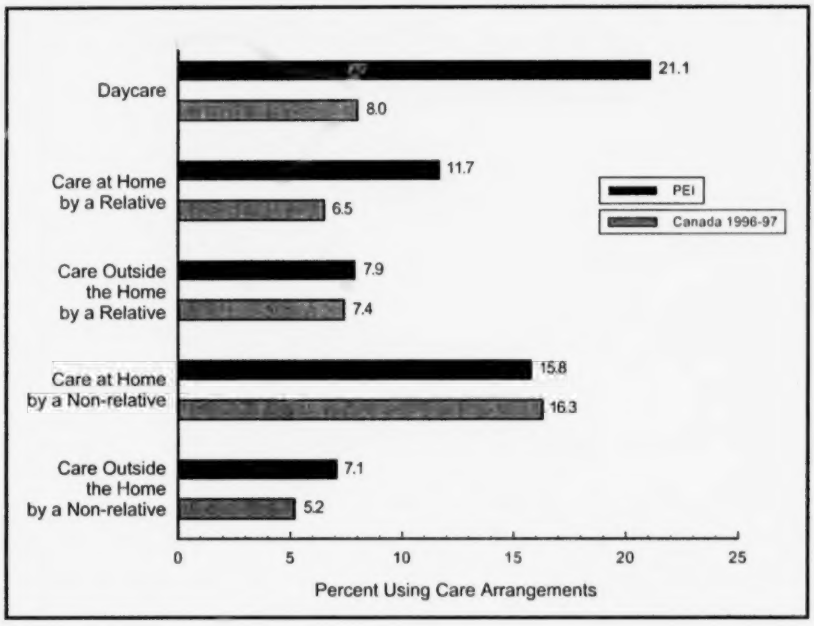


Figure 4.8 illustrates the distribution and the location of child-centred resources on Prince Edward Island. Figure 4.9 focuses on the child-centred resources found in Charlottetown. The range of early childhood care and education programs includes Multi-age Early Childhood Centres, which may offer childcare, play school, nursery school and/or kindergarten programs, and Drop-in programs.

Figure 4.10 illustrates the distribution and the location of family centred resources on Prince Edward Island. Resources that support families with young children on Prince Edward Island include prenatal programs, parenting programs, parent support groups, teen parenting programs, and family management and support programs.

In PEI, 143 programs and services were available for Parents and Caregivers. Nine Family Resource Centres provide over 65 of these programs through their centre and outreach services. While PEI's Family Resource Centres ensure that programs are offered in each region across PEI, transportation to and public awareness of the programs that are offered remains a barrier. As seen in Figure 4.11, the majority of programs remain based in the Charlottetown Area, which limits access outside of the capital city region.

To summarize, Prince Edward Island has a number of strengths. The community as a whole exhibits high levels of social support and social capital; neighbourhoods are stable; and people are involved with one another. Parents on average have strong parenting skills, families are functioning well, and mothers exhibit high levels of mental health. The community has a relatively low level of transience.

Figure 4.8

Child Centred Resources in Prince Edward Island

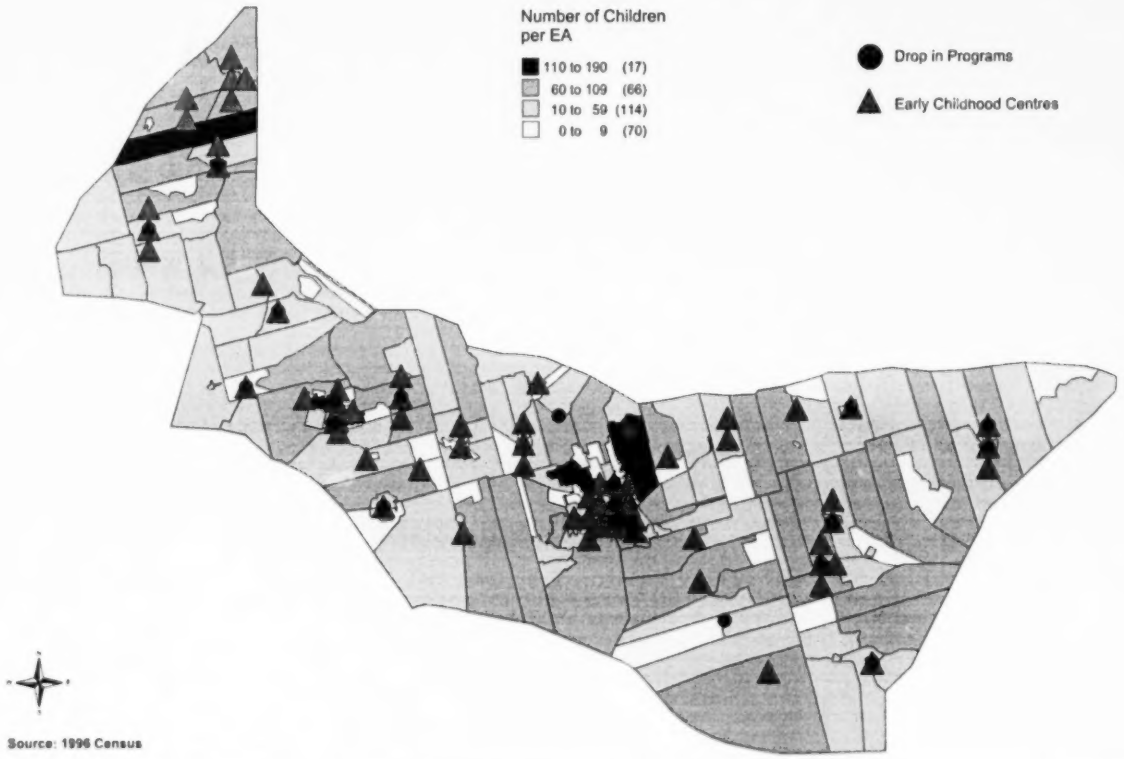


Figure 4.9
Child Centred Resources in Charlottetown

Figure 4.10

Family Centred Resources in Prince Edward Island

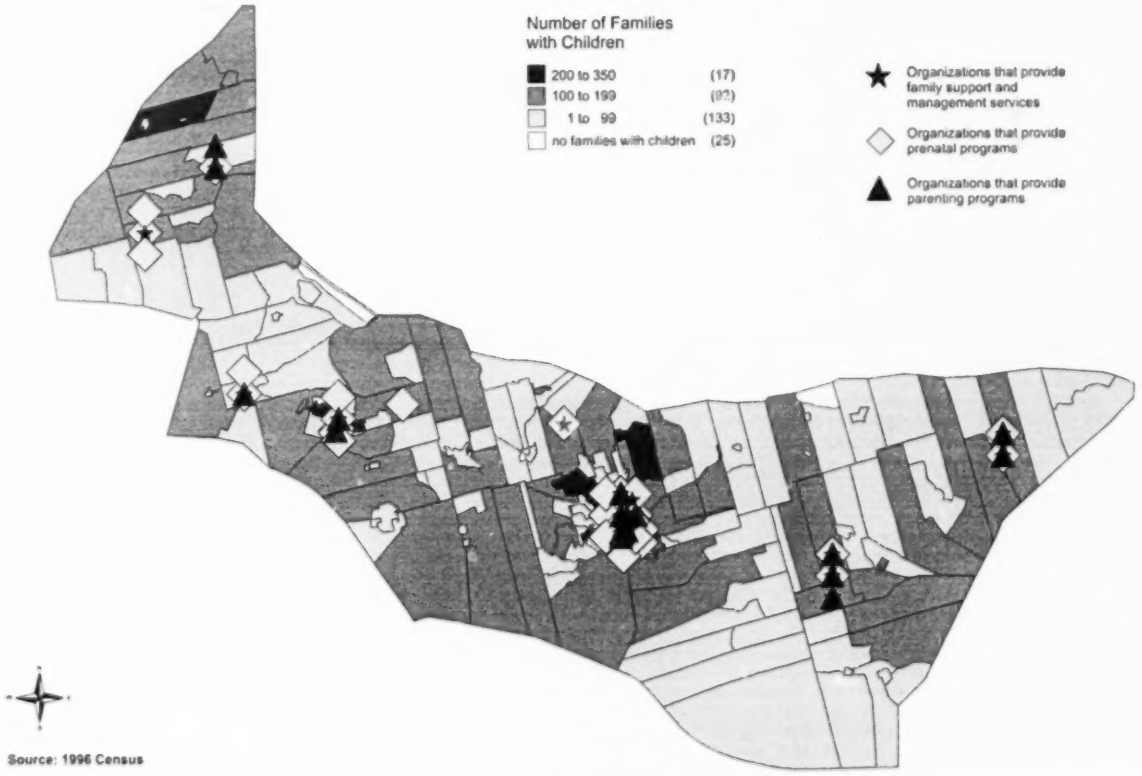

Number of Families with Children
200 to 350 (17)
100 to 199 (82)
1 to 99 (133)
no families with children (25)
Organizations that provide family support and management services
Organizations that provide prenatal programs
Organizations that provide parenting programs
Source: 1996 Census

Figure 4.11

Family Centred Resources in Charlottetown

Number of Families with Children
200 to 350 (17)
100 to 199 (92)
1 to 99 (133)
no families with children (25)
Organizations that provide family support and management services
Organizations that provide prenatal programs
Organizations that provide parenting programs

V. Looking Forward

Overall, the children of Prince Edward Island were healthy and showed strong signs of positive development and readiness for learning. They scored above national norms in all three domains (cognitive, behavioural, and physical health and well-being). Parents had relatively strong parenting skills and were members of strong, stable communities, factors that undoubtedly contribute to PEI's success in achieving high levels of children's outcomes.

Prince Edward Island also had high scores on wider community indicators describing its levels of social support, social capital, and the quality and safety of its neighbourhoods.

Although many Canadian communities share at least some of these broader characteristics, each community also exhibits a variety of unique features that set it apart from others.

This is one of the reasons community-based research is so important. Research allows a community to understand how well its youngest citizens are developing and lends insight into how the obtained results came about. Investments for families and children, as well as for children's development, can be monitored over time so that effectiveness and efficiency of community effort can be improved.

This community can take pride in the success of its youngest children. However, there is room for improvement. More than 11% of its children had low scores on the *Who Am I?* test, 9.5% scored poorly for aggression/ conduct disorder and 9.4% had low scores for positive behaviour.

Scores on these measures can be improved through greater parental involvement in children's learning activities, which was the province's weakest area on the ten indicators. The community could also strive to improve children's access to educational and cultural resources.

A. What Makes Prince Edward Island Unique?

Several features stand out as unique to Prince Edward Island. First, as we have discussed, Prince Edward Island has strong communities with high levels of social support and social capital. Second, its neighbourhoods are safe and of high quality. Third, very few residents move within or out of the province, which can help its citizens take advantage of strong community and social resources that can engage parents and other caregivers in children's learning activities.

B. Summary

Prince Edward Island is one of the first communities participating in the UEY Initiative. Through this initiative, valuable lessons are being learned about the needs and strengths of communities with different economic, social, and physical characteristics. With respect to early childhood development, we are also learning how they are working to improve children's outcomes, as well as the relative success (or lack thereof) of their efforts.

Communities will determine how their citizens will work together to improve children's early developmental outcomes. Results from the UEY initiative will inform the discussion in the community for future action.

At the same time, it is a societal responsibility—of governments, educators, community agencies, neighbourhoods, and families—to make sure improvements take place for all children. Strategies that require

the community to look at itself as a whole community, as well as neighbourhood by neighbourhood, will likely have more enduring effects. UEY is able to provide research results to support both.

For example, neighbourhood by neighbourhood, families may improve their outdoor play-spaces, and on a community level, concerned agencies and organizations could improve community-wide strategies to integrate disadvantaged groups. As communities document their efforts, as well as their results, effective practices will be identified.

Any community's response must consider its unique features of the area. The importance of a co-ordinated approach involving families, teachers, and all community members must be emphasized because each has been shown to be important in enhancing a child's development. Governments, community institutions, schools, and the voluntary sector in Prince Edward Island must continue to work together, as each can make a valuable and important contribution. Support for families with children from the larger community network is critical.

Appendix A

Prince Edward Island's Commitment to Early Childhood Development

In September 2000, the Province of Prince Edward Island implemented a new, publicly funded, community based kindergarten system. This system supports the integration of childcare and kindergarten, thus allowing children to participate in developmental programs. These programs are designed to revolve around children, rather than have children move from program to program. Therefore, kindergartens on PEI are designed and operated to reflect the needs of the community. A kindergarten may be one program of many within a larger, multi-age childcare centre, or it may be an age specific program developed to meet the needs of a community. Kindergarten programs on PEI are unique in that they are community based, have low staff-child ratios(1:12), and are taught by early childhood educators.

Early Childhood Care and Education Programs on Prince Edward Island

Developmental outcomes, such as good physical health, the ability to learn, to cope with stress, to relate well to others and to have positive self-esteem, are known to have roots in the earliest experiences in life. Where, how and with whom children spend their time in their earlier years have major impacts on their healthy development.

PEI is working towards an integrated continuum of services and programs that support early development, and also support parents in balancing work and family responsibilities. PEI has a community based system of early childhood care and education programs that includes licensed full day childcare programs, half day kindergarten and nursery programs, family day-care homes, and school age childcare programs.

In 2000, there were approximately 4300 spaces in licensed early childhood centres, and approximately 400+ staff with differing levels of education and training.

The Prince Edward Island Department of Health and Social Services is responsible for regulation of the industry through the Child Care Facilities Act (1988) as administered through the Child Care Facilities Board (CCFB).

The Department of Education has the lead responsibility for the kindergarten program. The Department of Education oversees parent fees, curriculum development and support, and communication within government and with the community. The Department of Health and Social Services is also involved in the kindergarten program, and is responsible for licensing, staff certification and supports for children with special needs.

- 159 organizations provided 279 programs for children in the pre-school years.
- More than 50% of these organizations were located in the Charlottetown area.
- There were 62 multi-age early childhood centres, 91 kindergarten programs (35 of which are in multi-age early childhood centres), 33 pre-school and nursery programs, and 25 parent and tot drop-in play programs.

Family Resource Centres on Prince Edward Island

Parents play a critical role in the lives of children. Research emphasises the importance of family stability (including socio-economic stability), supportive relationships and security as protective factors in the lives of

children. Positive parenting practices have been related to increased pro-social behaviours in children and a decreased likelihood of behavioural problems.[14] The literature also suggests that parenting and life skills training for adults can serve as protective factors to decrease children's risk for problems.[15]

Family structure has changed over the past decades. Marital separation and divorce have resulted in many parents who share the responsibility for children from two homes. Also, there are increasing numbers of women, and in particular, women with children, in the work force.[16] With the majority of parents in PEI and in Canada involved in the workforce, supports that assist parents in balancing work and family responsibilities are necessary to ensure the quality and degree of parental involvement. Family Resource Centres help provide this needed support.

- PEI had 17 organizations that provided pre-natal programs, and 50 organizations that provide parenting classes and programs.
- There were 30 organizations that provided family management and support programs, which include stress and money management, family relationship workshops, and respite care programs.
- Family Resource Centres were located in each of the five health regions in PEI, including three in Queens County. Most of these centres also had outreach programs to extend their services to neighbouring, small communities. As well, there was a Francophone, and a Mi'Kmaq Family Resource Centre.

Community Centred Resources on Prince Edward Island

As discussed earlier, the physical, safety and social factors of a neighbourhood, and the wider community, impact parents' abilities to raise their children, and affect child outcomes. The NLSCY has determined that access to educational, cultural and recreational resources has an influence on children's development. Similarly, the degree to which parents engage their children in these activities also affects their child's development. In addition, the social benefits gleaned from community participation (social support, social capital and social cohesion) have positive influences on the healthy development of all children in that community.

Children living in more civic neighbourhoods (characterised by factors such as helpful neighbours, safe environments, and the presence of good role models) are more likely to have participated in sports related activities.[17] As well, a recent study on involvement in sports found that active parents tend to have active children, and that families with higher incomes were more likely to have children involved in sports compared with families with lower incomes.[18]

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[14] Chao, R.K. & Willms, D.J. (1998, October). Do parenting practices make a difference? Paper presented at Human Resources Development Canada's Investing in Kids Conference, Ottawa, Ontario.

[15] Harachi, T.W., Catalano, R.F., & Hawkins, J.D. (1997). Effective recruitment for parenting programs within ethnic minority communities. Child and Adolescent Social Work Journal. 14 (1), 23-29.

[16] Healthy Child Development Advisory Committee. (2000). ...For our children: A strategy for healthy child development. Charlottetown, Prince Edward Island: Province of PEI.

[17] Offord, D.R., Lipman, E.L. & Duku, E.K. (1998). Sports, the Arts and Community Programs: Rates and correlates of participation. Hull, Quebec: Human Resources Development Canada, W-98-18E.

[18] Kremarik, F. (2000, Fall). A family affair: children's participation in sports. Canadian Social Trends. 20-24. Hull Quebec: Statistics Canada.

Community services are beneficial to all residents. Community based programs provide an important opportunity for children to learn social and other skills through interaction with their peers, and through instruction or mentoring by adults. However, almost two-thirds of all children and 80% of low-income children rarely participate in clubs or group programs such as those offered at community centres.[19] Barriers to accessing community programs, such as cost and transportation, may be responsible for their lower rates of use.

- Community support and safety programs include neighbourhood watch programs, welcoming programs and community centres. Forty-four of these programs were on PEI in 2000.
- There were 42 libraries, toy and equipment lending libraries, and clothing exchanges in communities across PEI.
- 35 Recreation and Community Centres were located across PEI.
- 70 arts and recreation programs were available to pre-school age children and their parents.
- On Prince Edward Island, there were 32 arenas, 92 sports fields, and 17 public swimming pools.

Preventative Health Services on Prince Edward Island

Good health, where children are physically, emotionally, and spiritually as healthy as possible, with strong, self-esteem, coping skills and enthusiasm, is one of the broad goals identified in Prince Edward Island's Strategy for Healthy Child Development.[20] Indicators of health include healthy birth weight for infants, high breastfeeding rates, children demonstrating appropriate developmental milestones, being free of preventable injuries and diseases, having proper nutrition and having good mental health. Nutritional programs, counselling programs, and public education in communities work to ensure that all children have the best start in life. Furthermore, helping parents to identify problems early and have access to early intervention increases a child's chances of achieving optimal development.

Environments in which there are high levels of social and economic inequality, social isolation and a lack of social cohesion are associated with adverse health - especially that of young, developing children. These factors also make it difficult for families to create positive environments for children. The pre-school years represent an important state of development for children. Thus, issues of food security, adequate nutrition and hunger are of great consequence for children in the pre-school age range.[21] Past research has shown that nutrition programs have improved outcomes for children.[22] Similarly, counseling and mental health services can be beneficial to all members of the community as preventative and corrective measures. A recent study in the U.S. found that the availability of community-based services has been associated with

[19] Ross, D.P., & Roberts, P. (2000). Income and Child Well-being: A new perspective on the poverty debate. Ottawa, Ontario: Canadian Council on Social Development.

[20] Healthy Child Development Advisory Committee. (2000). ...For our children: A strategy for healthy child development. Charlottetown, Prince Edward Island: Province of PEI.

[21] Hay, D.I. (2000). School food programs: A good choice for children? Perception, 23(4). Ottawa, Ontario: Canadian Council on Social Development.

[22] Steinhauer, P.D. (1998). Developing resiliency in children from disadvantaged populations. Canada Health Action: Building on the legacy papers commissioned by the National Forum on Health. Sainte-Foy, Quebec: Editions Multi-Mondes.

decreased rates of hospitalization services for children with emotional disturbances.[23]

- On PEI, there were 18 organizations that provided nutrition programs.
- 17 organizations provided counselling programs for pre-school age children and their families.
- There were 67 organizations that provided health education prevent and intervention programs.
- 13 programs were found that specifically addressed the issue of family violence prevention and education.
- There were 37 medical offices or clinics across PEI.

[23] McNulty, T.L., Evans, M.E., & Grosser, R.C. (1996). If you build it, they will come: the relationship between hospitalization and community based services for children with emotional and behavioural disorders. Research in the Sociology of Health Care, 13b, 267-287.

Appendix B

The Early Childhood Development Association of PEI

The Early Childhood Development Association of Prince Edward Island is a provincial, non-profit organization committed to promoting physical, emotional, social, cognitive, and creative development of young children. Membership consists of people involved or interested in early childhood care and education on PEI. They include owners and operators of licensed early childhood facilities, professionals working in related fields, teachers, and parents. The goals of the ECDA are to provide and exchange information with parents, the public and professionals concerning the education and care of young children; to provide information, facilitate communication and develop professionalism within the membership; and to support the activities of other organizations concerned with young children.

In November 2000, the Early Childhood Development Association of PEI presented to the PEI Provincial Government, on behalf of the Healthy Child Development Advisory Committee, a strategy for the healthy development of Island children. This strategy set the stage for the Island to make the nurturing and caring of the children the highest of priorities. The work that the Early Childhood Development Association of PEI is implementing through the UEY initiative is providing important information on which to ground future province-wide and neighbourhood-specific endeavours regarding the early years of life.

The Early Childhood Development Association of PEI contacted agencies throughout the province that offer programs and services for children age 0-6 and their families. The goal of this survey was to acquire more information about the variety of programs, program clients, and barriers to accessing programs. Representatives from 666 programs, run by 313 organizations were contacted during the Spring and Summer of 2000.

What was learned from the survey:

- The majority of organizations (52%) were located in Charlottetown.
- The majority of programs were lead by paid staff, but also relied on volunteers. 10% of the programs were completely run by volunteers.
- 62% of the programs were running at full capacity all the time, and 29% had waiting lists to access their programs.
- 60% of programs charged a fee.
- 42% of funding for these organisations was provided by parent user fees, with 36% of funding provided by provincial government, and 17% of funding provided by fundraising activities.
- 24% of the programs offered transportation.

Highlights of Prince County Programs:

- 69 organizations that offered programs and services to children age 0-6 and their families were located in Prince County.
- 84% of these organizations were in Summerside.
- There were 70 programs for children age 0-6 and 45 pre-natal and parenting programs.
- 38% offered transportation.
- 74% were running at full capacity all of the time.

- 34% had waiting lists.
- 61% charged a user fee.

Highlights of Queens County Programs:

- 203 organizations that offered programs and services to children age 0-6 and their families were located in Queens County.
- 80% of these organizations were located in Charlottetown.
- There were 167 programs for children age 0-6 and 72 pre-natal and parenting programs.
- 11% offered transportation.
- 60% were running at full capacity all of the time.
- 30% had waiting lists.
- 62% charged a user fee.

Highlights of Kings County Programs:

- 41 organizations that offered programs and services to children age 0-6 and their families were located in Kings County.
- 31% of these organizations were in the town of Montague.
- There were 42 programs for children age 0-6 and 25 pre-natal and parenting programs.
- 52% offered transportation.
- 37% were running at full capacity all of the time.
- 17% had waiting lists.
- 49% charged a user fee.